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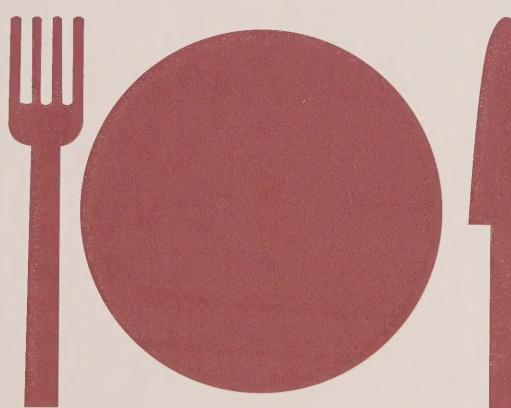
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# Emergency Food Service: Planning for Disasters



Canada

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Centre for Emergency Preparedness and Response  
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# Emergency Food Service: Planning for Disasters



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# Foreword

This revised manual, produced by the Centre for Emergency Preparedness and Response of the Public Health Agency of Canada, is intended to help professionals to deliver emergency food service in a disaster.

The target audience includes emergency food service personnel, dietitians, nutritionists, home economists, public health officers, health care personnel, food caterers and relevant volunteer organizations such as the Canadian Red Cross and the Salvation Army. The aim of this manual is to enhance understanding with the hope that interest and support will follow.

Comments or suggestions that would help improve the delivery of this service are welcomed and should be sent to: Office of Emergency Response Services, Centre for Emergency Preparedness and Response, Public Health Agency of Canada, PL 6201A, 100 Colonnade Road, Ottawa, Ontario, K1A 0K9

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The Office of Emergency Preparedness (OEP) has coordinated, in consultation with the Council of Emergency Social Services Directors (CESSD), the reprint of this manual in 2007.

# Emergency Social Services (ESS)

## 1. Human Consequences of Disasters

Every year natural and man-made disasters afflict numerous Canadian communities. Floods, fires, tornadoes, blizzards, and ice storms can cause disasters, as well as hazardous chemical spills, transportation mishaps and industrial accidents.

Although disasters may harm the physical environment, primarily they affect people. Lives are lost, people are injured, homes are destroyed, and families are disrupted. Psychological, social and economic disruptions affect the well-being of individuals, families and the community as a whole.

## 2. Emergency Social Services

In large-scale disasters, human needs are so great and social disorganization is so widespread that regular community social services are unable to cope. Only emergency social services response systems can meet urgent physical and personal needs until longer-term programs are established.

Emergency Social Services (ESS) is a planned emergency response organization designed to provide disaster victims with essential services.

ESS has six service components:

### 2.1 Emergency Clothing Service

supplies clothing or emergency covering until regular sources of supply are available.

### 2.2 Emergency Lodging Service

arranges for safe, temporary lodging for homeless or evacuated people.

### 2.3 Emergency Food Service

feeds evacuees, emergency workers, and disaster volunteers.

### 2.4 Registration and Inquiry Service

attempts to reunite families by collecting information and answering queries about missing persons.

### 2.5 Personal Services

receives disaster victims at reception centres; provides information about emergency help; offers temporary care for unattended children and dependent, elderly women and men; helps provide temporary care for residents of special care facilities; offers immediate and long-term emotional support, where needed.

## 2.6 Reception Centre Service

Sets up and operates Reception Centres, a one-step service site, where evacuees are received and in which five of the Emergency Social Services are provided: clothing, lodging, food, registration and inquiry, and personal services.

## 3. Emergency Social Services Planning

### 3.1 Who Is Responsible?

Relevant government agencies and community organizations undertake to develop local ESS plans.

Participants may include:

- municipal or provincial departments of social services, public health, mental health, family and children's services, etc.
- private social service agencies.
- service clubs, church groups, branches of national organizations; and
- business and professional associations.

A community's ESS response organization is generated by and integrally linked to existing human service organizations. It supports the existing human services structure, and does not replace it.

### 3.2 Organization Chart

See Appendix A for an example of an ESS organization chart.

## 4. A Community Emergency Response Plan

The community plan outlines emergency roles of municipal police, fire, transport and social service departments, plus major utilities, ambulance companies, and others.

The ESS response plan is part of the overall community response plan and should be developed in conjunction with the community plan.

# Emergency Food Service (EFS)

## 1.1 Introduction

In times of disaster, food is essential to sustain life, counteract shock, raise the morale of evacuees and provide energy for workers labouring under stressful conditions.

- meet the special food requirements of high-risk groups, including infants, children, pregnant and nursing women, the elderly, diabetics, and disaster workers;
- provide appropriate food service.

Essential considerations include:

- food requirements (hot or cold meals; quantities)
- available supplies, staff and facilities
- the time of year (i.e. winter, summer)
- religious or cultural requirements
- the need for safe, wholesome food

## 1.2 Meeting Urgent Needs

An Emergency Food Service is an emergency response organization designed to provide food for:

- those who cannot feed themselves, or those without food or food preparation facilities; and
- recovery workers and volunteers

## 1.3 Responsibilities

To be effective, Emergency Food Service programs must be able to:

- help evacuees cope with a disaster by meeting their needs for a sufficient amount of food to maintain a feeling of well-being;

# Organization of a Food Service (FS)

## 2.1 Planning

To respond rapidly to the nutritional needs of disaster evacuees, communities need well trained FS organizations which can begin operating as soon as a disaster strikes. This chapter describes how to set up a community FS.

## 2.2 Structure

A community's size dictates the structure and scope of an FS organization. The organization should be flexible enough to respond to a variety of emergency situations and demands.

See Appendix B for an example of FS organizational chart.

## 2.3 Personnel Roles and Responsibilities

To ensure a prompt and effective emergency response, FS staff must clearly understand their roles and responsibilities.

### 2.3.1 The FS Coordinator

The Director of Emergency Social Services appoints and trains the FS Coordinator. He or she is responsible for advance preparations as well as emergency responses and post-emergency measures.

#### Prior to a disaster, the FS Coordinator:

- selects an FS planning and organizing committee;
- establishes good working relations with food retailers, wholesalers, and distributors;
- develops an FS response plan;
- selects and trains staff;
- tests the plan by conducting regular FS exercises, then revises and updates the plan;
- co-ordinates the FS plan with the five other ESS plans;
- notifies the Director of ESS about a building suitable for the FS; and
- makes certain that all FS operational sites have adequate equipment and supplies.

See Appendix C.

#### During a disaster, the FS Coordinator:

- reports to the ESS co-ordination centre and, if required, initiates and directs FS operations;
- ensures the maintenance of an FS log and provides ongoing reports on problems, needs, and activities to the Director of ESS; and
- co-ordinates food supplies, including distribution to reception centres.

### After a disaster, the FS Coordinator:

- makes certain that FS staff are included in stress management sessions; and
- prepares a post-disaster report on FS emergency activities for the Director of ESS.

### 2.3.2 The FS Planning Committee

This committee helps the FS Coordinator prepare detailed Food Service plans.

#### *(i) Membership*

Recruit FS planning committee members from the community. Suitable participants include:

- restaurateurs, hotel and canteen managers;
- dietitians, food technicians, home economists, nutritionists, and chefs;
- supervisors of commercial cafeterias;
- volunteer representatives of the Canadian Red Cross, the Salvation Army, Meals on Wheels and other community meal distribution programs; and
- public health officials, food caterers, food retailers, wholesalers, and distributors.

#### *(ii) Responsibilities*

The planning committee helps the FS Coordinator to:

- secure the active participation of relevant food agencies and groups in the community;
- develop the FS response plan;
- identify immediate and ongoing food problems which disaster victims are likely to face;
- evaluate the availability of FS resources in the community, including personnel, supplies, and equipment; and
- assign FS response roles and responsibilities.

### 2.3.3 Food Supervisors at Reception Centres

The Coordinator of FS appoints a Food Supervisor for each designated reception centre in the community. The Food Supervisor reports to the reception centre manager on administrative matters and to the FS Coordinator at the ESS headquarters on the operation of the FS.

The Food Supervisor will:

- direct operations at the reception centres;
- mobilize staff when the FS plan goes into effect, and set up an FS in the reception centre;
- train FS staff at the designated reception centre;
- prepare work schedules;
- maintain nutritional variety, in accordance with Canada's Food Guide;
- maintain proper sanitation practices and safe working conditions;
- keep an up-to-date log on borrowed items, messages and donations; see Appendix D;
- report problems, needs and the status of activities to the FS Coordinator on a regular basis;
- keep in touch with other reception centres; and
- when the emergency is over, submit a report to the FS Coordinator and help evaluate the FS.

### 2.3.4 FS Workers at Reception Centres

The Food Supervisor supervises FS workers, including a chef, cooks, assistant cooks, and food servers.

#### **The Chef:**

- prepares the menu to meet basic nutritional requirements with available supplies;

- organizes the kitchen to ensure maximum efficiency and safety;
- plans a work schedule;
- assigns and supervises work;
- ensures proper storage of food supplies;
- oversees efficient organization of stock; and
- ensures proper sanitation and safety standards are practiced in cooking, food distribution, and food storage areas.

#### **Cooks and Assistant Cooks:**

- prepare stipulated meals and deliver food to the service counter;
- ensure an adequate supply of hot water is available; and
- prepare food for transportation (if necessary).

#### **Food Servers:**

- set up a service counter;
- set up garbage disposal units near cafeteria exits;
- set up self-service for cutlery, milk, sugar, and condiments;
- serve portions according to the chef's specifications;
- keep cooks informed of food requirements, to ensure adequate supplies;
- replenish food during the meal; and
- keep service counters clean.

#### **As soon as the meal is over, food servers must:**

- transfer leftover food to the kitchen and store food properly; and
- clean service counters.

#### **Dishwashers and Cleaners:**

- set up a separate dishwashing area for dishes and serving equipment;
- maintain cleanliness in the area;
- remove garbage;
- wash and sterilize garbage containers; and
- wash floors.

---

## **2.4 Back-up Staff**

In a major disaster, the FS may have to operate on a 24-hour basis. Back-up staff will be needed to replace initial response staff.

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## **2.5 Recruiting FS Staff**

### **2.5.1 Sources of Personnel**

Experienced food service personnel are well-suited to FS work since they:

- work regularly in community food facilities;
- serve large quantities of food;
- plan menus;
- are capable of preparing meals under emergency conditions; and
- apply sanitary and food safety regulations.

In some communities, representatives of such local groups as the Salvation Army, the Canadian Red Cross and Meals on Wheels may accept these responsibilities.

## 2.5.2 Selection Criteria

In selecting candidates for key FS positions, look for the following:

- practical knowledge and experience in the food service field;
- an ability to plan, organize, and direct;
- training in emergency planning;
- familiarity with community resources;
- an ability to work under stress;
- initiative and flexibility in emergency situations; and
- knowledge of a variety of cultural diets and food preferences.

- insulated containers, etc.;
- serving utensils;
- sugar and salt shakers;
- pitchers ;
- trays;
- a folding table (for serving); and
- a portable stove to keep hot food hot (over 60°C/140°F).

For more details on suggested staff, see Appendix J.

## 2.6.2 Mobile Kitchen

The mobile kitchen consists of one or more vehicles equipped to serve but not prepare food. It carries its own water, food supplies, and fuel.

## 2.6.3 Mobile Feeding Unit (MFU)

The MFU is provided by the Public Health Agency of Canada and can be used to serve simple meals on a continuous basis to from 400 to 600 persons per hour. The unit is packed in 13 wooden boxes; a limited number of units are stockpiled in the provinces and territories. See Chapter XI for more details.

## 2.6 Mobile Emergency Food Service Team

Each reception centre must be equipped to outfit at least one Mobile Emergency Food Service team. Three types of mobile units are available.

### 2.6.1 Mobile Canteen

A truck, station wagon or SUV can be made into a mobile canteen with the addition of portable sections. A simple unit, the mobile canteen is equipped to serve food which has been prepared elsewhere. Replenish food and eating utensils frequently.

#### Suggested Equipment for a Mobile Canteen

- can opener;
- eating utensils;
- containers for food and liquids;
- disposable plates, cups;
- garbage cans;

# Emergency Food Resource Survey and Directory

## 3.1 Introduction

Survey your community for information about available food. The resulting Food Resource Directory enables the FS to respond rapidly to emergency food needs in a disaster.

## 3.2 Planning the Survey

The FS Coordinator is responsible for planning the Food Resource Survey, but he or she can be assisted by members of the FS planning committee.

The FS Coordinator briefs survey workers on survey procedures and information needed.

Notify survey participants in advance by describing the purpose of the survey in a form letter signed by the FS Coordinator.

## 3.3 Conducting the Survey

Survey food establishments to obtain precise information about sources of food in the community.

### 3.3.1 Producers, Processors, Wholesalers, and Retailers

These are the main supply sources.

Formal advance arrangements should be made with all prospective food suppliers at both the local and regional levels.

- *Producers* generate food.
- *Processors* clean, sort, and prepare food for shipment.
- *Wholesalers* supply commercial food establishments.
- *Retailers* include cafeterias, coffee shops, fast-food outlets, grocery stores, restaurants, and supermarkets.

### 3.3.2 Food Service Facilities

Identify food service operations in schools, colleges (private and public), universities, government buildings, hotels, motels, special care facilities, and churches. These facilities are usually available for emergency use and likely have both food preparation staff and a stock of food.

### **3.3.3 Mobile Canteens, Field Kitchens**

Canvass the community for mobile canteens and field kitchens. These are practical and flexible methods of providing food to people at remote and inaccessible sites.

Individuals who operate commercial food-vending trucks are ideally suited to running mobile canteens and food kitchens in an emergency.

### **3.3.4 Voluntary Organizations**

Survey the available resources of voluntary and public service groups, including the Canadian Red Cross, church groups, the Salvation Army and Meals on Wheels.

## **3.4 Emergency Equipment and Supplies Survey**

Find and record sources of kitchen equipment and supplies. See Appendix C for a list of equipment and supplies.

Determine the location of reception centres, food distribution and cooking areas in selected operating facilities and record these locations in the FS plan. For information about space, equipment, and supply requirements at FS sites, see Appendices C and F.

Survey restaurants, food caterers and food suppliers in the local area and keep a record of names, addresses and telephone numbers. Use this list as well as a source for experienced personnel to staff the FS.

## **3.5 Kitchen Resource Survey Form**

See Appendix H for a sample kitchen resource survey form.

## **3.6 Written Agreements**

Negotiate emergency provisioning with surveyed suppliers. Include compensation rates and methods of payment, where applicable, in written agreements.

The written agreement must specify:

- the type of food the supplier will provide;
- how quickly the supplier will provide it; and
- how the supplier will transport the food.

See Appendix L for examples of letters of agreement.

## **3.7 Maps and Boundaries**

Prepare FS maps showing the quickest routes to local suppliers.

Maps should indicate the location of:

- all sources of fresh water (lakes, rivers, springs, reservoirs, etc.);
- local food suppliers, wholesalers and retailers, including food warehouses, packing plants, supermarkets, and food distribution points;
- waste disposal sites;
- food preparation and serving sites;
- principle supply routes, in addition to the quickest supply routes; and
- remote feeding sites.

---

### **3.8 Record Keeping**

List food, equipment, and other financial expenditures on forms for the FS Coordinator. See Appendix D for more details.

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### **3.9 Emergency Food Directory**

List survey information in an FS Directory. Use the Directory to locate essential supplies in an emergency. See Appendix D for more details.

Review the Directory at least once a year, and keep information up-to-date.

# Operational Guidelines

## 4.1 Introduction

This chapter outlines operational guidelines for FS personnel.

## 4.2 General Operational Guidelines

- 4.2.1 Ensure the availability of safe drinkable water.
- 4.2.2 Have a variety of baby foods available at all times.
- 4.2.3 Prepare milk and cereals for infants.
- 4.2.4 Serve evacuees and workers a hot or cold beverage.
- 4.2.5 Provide muffins, doughnuts, cookies, juice, milk, etc.
- 4.2.6 Establish priorities that meet the food needs of pregnant women, nursing mothers, the elderly, and diabetics.
- 4.2.7 Serve a nutritious meal to workers and provide non-stimulating drinks such as fruit juice, water, and bouillon on a regular basis, especially if their work is physically demanding.
- 4.2.8 Maintain proper sanitation practices and safe working conditions.
- 4.2.9 Serve familiar food to evacuees.

## 4.3 Specific Operational Guidelines

### 4.3.1 Importance of an Adequate, Safe Water Supply

Notify FS personnel if there are water problems. In areas where local water is considered unsafe, water should be purified. See Appendix E for more details.

### 4.3.2 Infants

Mothers may continue to nurse. Nursing formulas (such as Similac; SMA, Enfalac, etc.) should also be available. See Appendix I for other possible solutions if these formulas are not available.

### 4.3.3 Infants and Young Children

Keep supplies of ready-to-eat infant cereals for infants six months of age and over.

### 4.3.4 Pregnant Women and Nursing Mothers

Pregnant women and nursing mothers have no special food requirements, but they must drink an extra litre (1 quart) of milk per day and eat one citrus fruit per day.

## 4.4 Sanitation Guidelines

Food handlers must obey sanitation regulations to avoid health risks. The risk of contamination increases in emergency situations since food servers are often over-worked and operating under unsatisfactory conditions.

### 4.4.1 Safe Procedures Essential

To ensure safe food handling, closely supervise:

- the water supply;
- food-storage methods;
- workers' personal hygiene;
- food preparation and service;
- waste disposal;
- dishwashing and rinsing procedures; and
- kitchen sanitation.

### 4.4.2 Personal Hygiene

Personal hygiene regulations are well known, but constant supervision is needed to ensure basic rules are followed. Food handlers must:

- wash hands before and during food preparation;
- work on a clean surface;
- use clean utensils;
- wear a hairnet or a net for beards; and
- stay home when sick.

## 4.5 Precautions Against Food Contamination

Strict sanitary rules must be implemented to ensure that carefully selected, uncontaminated food and water does not become contaminated during meal preparations.

*Food-borne illnesses can be avoided by following good food-handling practices.*

## 4.6 Operational Procedures at Warehouses

### 4.6.1 Dry Food Storage

Under disaster conditions, storage facilities may not be ideal. It is particularly important to observe the following guidelines:

- keep the storage area as cool and dry as possible;
- eliminate rodents and insects;
- store foods on shelves to ensure proper air circulation and protect against dampness;
- discard spoiled food;
- note the date food arrives;
- utilize food in rotation, according to purchase dates; and
- destroy damaged canned goods.

## 4.6.2 Refrigerated Storage

Refrigeration is vital during a disaster. Basic safeguards to follow include:

- avoid overcrowding – plan food storage for best use of space;
- potentially hazardous food should be cooked well and cooled quickly by refrigerating below 4°C (40°F). This applies to milk products, milk-based desserts, meat, fish and poultry;
- note when food was cooked;
- place cooked foods above raw foods; and
- regularly wash the interior of the refrigerator and all containers.

## 4.7 Improvised Refrigeration

You may have to improvise refrigeration in certain disaster situations. Options include a desert cooler and a reach-in-pit cooler.

Refer to Appendix Q for more details.

# Emergency Food Service Management Operational Procedures

## 5.1 Food Service Management

The Emergency Food Service is probably the most complex component of the ESS. The EFS team should work closely with other services to ensure that food service facilities are adequately located and meet minimum food storage, preparation and service requirements.

## 5.2 Emergency Priorities and Responsibilities

This chapter provides a checklist of Food Service priority activities in an emergency. Checklists apply to:

- initial preparation;
- meeting disaster evacuees' needs; and
- continuing priorities.

Guidelines explain some of the priority action recommendations. (See 5.3.2.)

## 5.3 Food Supervisor's Responsibilities

### 5.3.1 Priority Action Checklists

#### Initial Preparation

- 1. Meet the reception centre manager.
- 2. Check FS space allotment.
- 3. Mobilize staff.

#### Evacuees Arrive and Work Begins

- 1. Set up the supervisory office.
- 2. Start a log – record dates and times of arrival.
- 3. Brief FS personnel on:
  - the number of people expected;
  - problem areas; and
  - unusual resource requirements.

4. Check whether the following are ready to be used:

Food-receiving area	<input type="checkbox"/>
Cafeteria	<input type="checkbox"/>
Food storage area	<input type="checkbox"/>
Service counters	<input type="checkbox"/>
Kitchen area	<input type="checkbox"/>
Entrances	<input type="checkbox"/>
Dishwashing area	<input type="checkbox"/>
Exits	<input type="checkbox"/>
Refrigeration units	<input type="checkbox"/>
Traffic flow	<input type="checkbox"/>
Garbage receptacles	<input type="checkbox"/>

Follow priority action procedures, assess space allocation and determine whether additional supplies are needed for all of the above.

### Second Priorities

1. Specify boundaries for food service coverage.

2. Check numbers to be fed at the reception centre.

3. Check the need for a mobile team.

4. Set up priorities (for hot beverages, etc.).

5. Determine special dietary needs and cultural food preferences.

6. Start a log (for food, equipment, etc.).

7. Check supplies and restock as necessary.

8. Contact food suppliers.

9. Ensure hygiene and sanitation guidelines are enforced.

10. Check safety and security measures in the food area.

11. Contact back-up staff (if necessary).

12. Prepare public information about:

- meal hours; and
- menus.

### Continuing Priorities

1. Brief the FS Coordinator.

2. Establish daily FS schedules.

3. Stay in contact with other Reception Centres.

4. Keep FS personnel abreast of all changes.

### Closing

1. When the emergency is over, check the food service area to ensure everything is in order and refrigerators are empty.

### 5.3.2 Guidelines

#### *1. A Food Service Log is Essential*

A log facilitates smooth and effective FS operations.

The log should include:

- major management decisions;
- daily summaries of meals served and problems encountered; and
- any change in the numbers fed.

Use the log:

- to brief replacements or a superior;
- to keep track of borrowed, donated, and purchased equipment or supplies;
- to refer to earlier decisions, and
- to maintain continuity.

The Food Supervisor may appoint someone to maintain the log. See Appendix D for more details.

## **2. Daily Schedule**

Draw up regular schedules for all FS activities.

Schedules:

- make it easier to manage the Food Service;
- ensure essential tasks are done daily, and
- establish hours for meals and coffee breaks.

## **3. Administrative Services**

Administrative procedures – the paperwork or “red tape” portion of a reception centre’s operation – are necessary and important. Initiate these procedures at the start of the EFS operation and continue them until disaster evacuees return home or are relocated.

Basic administrative procedures involve:

- establishing and maintaining records related to food supplies, services, expenditures (if any), equipment (donated, borrowed, or purchased) and special problems (tag or mark all borrowed articles);
- setting up daily meals schedules; and
- filling out forms.

## **4. Daily Supply Report**

Every day the Food Supervisor tells the FS Coordinator about additional supply needs.

Supplies are co-ordinated by the FS Coordinator.

## **Reception Centre Closing Checklist**

The supervisor will:

- 1. notify the FS Coordinator who will contact the Director of ESS. He or she will notify all municipal emergency response services and other appropriate agencies of the closing date;

- 2. give receipts and outstanding invoices to the FS Coordinator;
- 3. arrange supply and equipment inventories;
- 4. return borrowed property and equipment, obtaining receipts for same;
- 5. ensure that kitchen and food storage areas are clean and refrigerators are empty;
- 6. restore the rest of the premises to their original conditions, restocking equipment and supplies if necessary;
- 7. inspect the kitchen area with the building’s owner, and report any damages;
- 8. arrange thank-you letters or recognition of staff and donors of goods, services, and facilities; and
- 9. write a final report on the FS operation for the FS Coordinator.

---

## **5.4 The Role of the Public Health Inspector in Emergency Health**

### **5.4.1 Determining the Scope of the Emergency**

The Public Health Inspector (PHI) can help determine the scope of the disaster and how it will affect the local population.

### **5.4.2 Public Health Effects**

The PHI can also help prevent serious disease outbreaks from food or water contamination during a disaster. Such problems can threaten health more than the disaster situation itself.

### **5.4.3 Monitoring and Sampling**

The PHI, in conjunction with health and environmental laboratories, can monitor problems to determine health effects on the local population and propose remedial measures.

Monitoring would cover:

- the direct effects of a toxic spill or a similar disaster;
- the effects of secondary toxins released during a flood or a fire (e.g., the tire fire in Hagersville, Ontario); and
- residual effects to food, water supplies, and local habitation.

### **5.4.4 Supervision of Health-Related Evacuation Facilities**

Include the PHI in all discussions about emergency requirements, including building needs, water and food supplies, and waste disposal.

### **5.4.5 Supervision of Remedial Measures**

The PHI monitors reconstruction efforts to ensure prevailing health standards are met.

# Training

## 6.1 Training Responsibility

The Food Service Coordinator trains or arranges for the training of FS staff. Training covers all aspects of the FS operation, as well as individual assignments.

## 6.2 Training Program

The FS training program should cover:

- **Community Emergency Planning**
  - Explain the roles of municipal emergency response organizations (such as police, fire, health, and public works departments)
  - Explain the role of the Emergency Planning Co-ordinator
- **Emergency Social Services**
  - Describe the five other Emergency Social Services
- **The FS**
  - Purpose
  - Responsibilities
  - Organization
- **FS Resources Survey and Directory**
  - Basic rationale
  - FS Resource Survey Records: how to complete them

- **FS Operational Guidelines**
- **FS at reception centres**
- **Emergency Food Management**
  - Purpose of the reception centres
  - Role of the Food Supervisor
  - Reception centre services
  - Equipment and supply needs
  - Priority checklists and guidelines
- **The FS Plan**
  - Call-up procedures
  - Emergency priorities
  - Alternate provisions
  - Operating procedures
- **The Log**
  - Its purpose
  - How to complete a log form

## 6.3 Basic Training in Civil Emergency Planning

The Coordinator of Emergency Food Service and EFS Supervisors should all receive basic training in Community Emergency Planning. Ideally, planning committee members should take courses offered by municipal, provincial and federal governments.

## **6.4 Selecting and Training Workers**

The FS Coordinator or FS Supervisors determine the number of workers an FS needs. See Appendix J for more details.

Recruit and train only key workers prior to an emergency. Recruit and train kitchen helpers, servers, dishwashers and others who do not require special training when the need arises.

# Food Service Plan

## 7.1 Planning Responsibilities

In order to respond promptly to the nutritional needs of evacuees, the FS must have a written plan that can be implemented in an organized and co-ordinated manner as soon as a disaster occurs.

The FS Coordinator and the planning committee develop a written FS plan in consultation with such municipal departments as:

- *engineering* (re: maintaining emergency equipment);
- *fire* (re: safety of designated FS buildings);
- *public health* (re: safe water sources and food safety); and
- *transportation* (re: safe transport routes for required food).

Once written, the FS plan forms part of the ESS response plan, which in turn is part of the overall community emergency response plan. The FS plan should therefore be considered in conjunction with these plans.

## 7.2 Characteristics of an FS Plan

The FS plan should be clear, concise, realistic and always up-to-date. It should be flexible enough to allow on-site staff to adjust the plan as situations change.

As part of the planning process, FS planners should try to anticipate typical FS problems during an emergency, and develop various solutions to the problems.

## 7.3 Plan Content

A plan should provide the following information.

### (a) Name

A name will distinguish the FS plan from other plans.

### (b) Statement of Purpose

This statement establishes the plan's objectives.

### (c) Organizational Details

Use appendices to amplify a basic statement about the organizational structure and alternate arrangements. See Appendix B for an organization chart.

### (d) Implementation Procedures

State who implements the FS plan, and under what circumstances.

### (e) Alerting Procedures

State notification procedures, using appendices to provide such details as:

- a key person alerts primary staff, alternates and essential community groups. Primary staff use a fan-out system to notify other staff members. Community groups alert their own staff.

#### (f) Resources

Amplify a basic statement with appendices outlining specific resource requirements covering:

- **personnel** – provide names, addresses and telephone numbers of all trained FS workers, with job assignments. Remember that you might require back-up staff if initial response staff become exhausted;
- **FS resources** – provide addresses and telephone numbers for prospective reception centres and contact persons (with home numbers as well); and
- **supplies and equipment** – list necessary equipment and supplies, sources of same and contact names, addresses, and telephone numbers. See Appendix C for more details.

#### (g) Training

Amplify a basic statement with appendices explaining:

- who is responsible for the training program;
- when and where training will take place; and
- who will conduct the training.

#### (h) Testing the Plan

Amplify a basic statement with an appendix describing:

- testing responsibilities; and
- testing frequency.

#### (i) Reviewing and Updating

Provide reviewing methods and procedures for updating the plan.

**Note:** Remember to adjust the plan to meet the needs and resources of your community.

## 7.4 Letter of Agreement

Negotiate written statements of agreement with organizations that have agreed to provide personnel, facilities, food or beverages, and equipment for the FS. See Appendix L for an example of a standard letter of agreement.

## 7.5 Mutual Aid Agreements

Mutual aid agreements enable adjacent communities to provide prompt and effective assistance in an emergency. Local governments should approve the plans.

## 7.6 Testing the FS Plan

Once you have developed your FS plan, trained workers and located equipment and supplies, test organizational and operational response procedures and evaluate performances. Simulated exercises are effective.

Devise exercises which could incorporate:

- minimum food supplies;
- minimum staff;
- unforeseen problems (such as equipment breakdown);
- emergency-type meals;
- mass feeding; and
- an improvised feeding area.

The Director of ESS or the Coordinator of FS should co-ordinate the exercises.

Exercises reveal a plan's strengths and weaknesses, enabling you to determine whether positions are adequately defined and whether the plan can meet its objectives. Evaluate exercise results with staff. Correct the plan as necessary.

---

## 7.7 Distributing the Plan

An emergency plan is of no use, of course, if no one knows it exists.

Advance distribution of the FS plan to relevant emergency response organizations and service groups is essential to ensure co-ordinated efforts in an emergency.

# Planning the Food Service in Hospitals and Other Institutions

## 8.1 The Role of the Department of Dietetics

The Department of Dietetics should incorporate a written plan in the overall hospital disaster plan. Remember the hospital plan is part of the overall municipal emergency plan.

- ensure back-up staff is available to maintain service continuity;
- keep track of activities and problems in a log;
- inform staff of schedule changes; and
- *be flexible enough to adjust to changing circumstances.*

## 8.2 Immediate Disaster Response

When a disaster occurs you must:

- determine the nature of the emergency and try to estimate how long the emergency will last;
- establish emergency priorities;
- determine staffing needs;
- assign emergency duties to qualified staff;
- assign duties in order of priority;
- ensure supplies and facilities are available;
- open a snack-bar on a 24-hour basis;
- maintain sanitary and safety regulations;

## 8.3 Guidelines for Evacuation and Relocation Planning

### 8.3.1 Relocation (within the establishment)

Hospital or institutional staff should be familiar with proposed relocation sites. The Department of Dietetics requires adequate advance information about a facility to plan an effective food service at the new site. Be certain a proposed site can meet your needs, and keep your emergency plan up-to-date.

Follow these steps:

- identify the relocation site;
- determine available space and make note of the physical layout, public utilities and available equipment;

- determine:
  - food transportation methods
  - service methods
  - elevator and lift availability;
- identify:
  - electrical outlet locations
  - traffic flow
  - exits and entrances
  - dishwashing area
  - garbage disposal area
  - snack bar area;
- attempt to solve problems caused by:
  - a loss of facilities
  - damage to facilities
  - an increase in the number of persons requiring food (residents, staff, patients, volunteers)
  - a lack of trained personnel for specific tasks
  - staff fatigue
  - a loss of institutional supplies
  - the physical isolation of the institution
  - picket lines; and
- attempt to restore interrupted services involving:
  - transportation
  - the delivery of supplies
  - public utilities (water, electricity).

### 8.3.2 Relocation (in a similar institution)

When an FS is relocated to another institution, staff members normally join the staff of the receiving institution and are under the authority of the receiving institution's directors. Establish clear, mutually agreeable lines of authority in the planning stage.

To carry out a smooth relocation, give staff specific evacuation assignments.

Steps to follow.

- Select food.
- Assemble and pack food supplies.
- Deliver supplies to new location.
- Locate storage area.
- Determine priorities and ensure smooth operation of food service.

### 8.3.3 Relocation (to a non-institutional building)

Negotiate in advance the use of schools, arenas, warehouses, churches or community halls for emergency relocation purposes.

Food service facilities will vary according to the type and size of building selected.

Typical examples include:

- buildings with facilities suited to both food production and meal service;
- buildings with limited public facilities which require slight modification or some additional equipment; and
- buildings with no cooking facilities but sufficient serving space, so food can be prepared elsewhere and brought in.

### 8.3.4 Improvised Facilities

Improvise food service facilities, if necessary, in the new location. You will need to pay particular attention to:

- the physical layout;
- equipment and supplies;
- staffing and job assignments;
- operational procedures;
- sanitation (facilities and utensils); and
- support from municipal emergency services.

If meals are served outside, post signs clearly indicating the location of the food reception area. See Appendix F for more details.

## 8.4 Other Planning Guidelines

### 8.4.1 Expansion

Expansion increases the service capability of an institution. The food service department must be prepared to:

- Feed more people, including:
  - casualties, other institutional residents
  - relatives and friends of casualties
  - volunteers and workers; and
- provide an adequate and simple meal.

### 8.4.2 Progressive Expansion

The progressive expansion plan must be flexible since it is used to plan the Emergency Food Service.

### 8.4.3 Maximum Expansion

To run an EFS efficiently, consider the following points.

- **Physical Facilities:**

- Use existing facilities and staff, where possible.

- **Menus**

- Discontinue selective menus;
  - set up emergency menus
  - determine the number of meals required
  - open 24-hour snack bar (use vending machines if necessary)
  - prepare a food priority list
  - alert suppliers.

- **Staff**

- Consider additional staff needs
  - plan to use key staff who may accompany evacuees arriving from another institution
  - determine lines of authority
  - line up qualified volunteers
  - plan assignments for supervised volunteers (regular staff provide supervision)

## 8.5 Supplies and Equipment

Take supplies at other institutions into consideration when arranging supplies and equipment.

### 8.5.1 Food

- Assess the adequacy of average food supplies for emergency purposes.
- Arrange emergency food deliveries if needed (in conjunction with the institution's purchasing department).

- Consider stocking emergency-type foods (such as convenience foods). If you already have emergency-type foods, decide whether to rotate and/or enlarge the stock.

## 8.5.2 Dishes and Cutlery

- Maintain enough disposable dishes and cutlery for meals for a few days.

---

## 8.6 Meal Service

For better meal service, speed and efficiency, follow these suggestions.

### 8.6.1 Tray Service (for patients and residents)

- Use self-serve line-ups, to avoid confusion.
- Use disposable dishes and cutlery.
- Plan an alternate method of food distribution.

### 8.6.2 Staffing

- Distribute food in the conventional manner and switch to self-service if needed.
- Open a 24-hour snack bar.
- Install vending machines, if necessary.

### 8.6.3 Modified Diets

- Establish priorities for modified diets.
- Adapt these diets to the main menu.
- Develop a simple identification and distribution system.

### 8.6.4 Infant Formula Preparation

- Use regular methods to prepare infant formula.
- Use infant formulas, but continue to prepare therapeutic milk. See Appendix I for more details.

### 8.6.5 Community Assistance

- Keep a continually updated list of institutions and agencies capable of providing special services or equipment.
- Arrange support from these organizations when the need arises.

---

## 8.7 Isolation (Survival)

Each institution should have its own emergency plan to cover service disruptions caused by severe storms, floods, strikes, civil disturbances, or a national emergency such as nuclear fallout.

The emergency plan should contain information about:

- additional sources of safe drinking water;
- water rationing and distribution;
- menus adapted to rationed food and water situations, or where cooking, refrigeration, and freezing facilities are lacking;
- food supply priorities;
- emergency supplies; and
- the need for proper sanitation practices and safety regulations.

Co-ordinate the Emergency Food Service plan with the master plan.

# Nutrition and Stress

## 9.1 Introduction

Disasters have a profound effect on the eating habits of evacuees and emergency workers. Emergency Food Service providers must be aware of potential problems.

## 9.2 Eating Habits and Stress

The intense stress of emergency or disaster situations often causes people to forget to eat. Some will have more appetite than others. Pay particular attention to those who say there isn't time to eat, or who say they are not hungry.

## 9.3 Nutritional Needs and Stress

Healthy individuals handle stressful situations best. A number of factors influence an individual's reaction, including:

- the type of stress;
- the intensity of the stress;
- the frequency of stressful situations; and
- the duration of stressful situations.

## 9.4 The Digestive System and Stress

Tension, fear, and emotional upset can cause swallowing difficulties, loss of appetite or increased appetite, nausea, vomiting, hyperacidity, gas, bloating, diarrhoea, or constipation. Conflict produces similar emotional responses.

## 9.5 Nutrition and Physiological Stress

Stress can affect bodily functions to the point of provoking illness. Symptoms of stress include:

- stomach aches;
- back pain; and
- ulcers.

Stress may also contribute to heart disease and cancer.

Stress-related eating habits vary from individual to individual and are often under-evaluated or neglected.

## 9.6 Food and Stress

Consider the effects of stress when selecting food for evacuees and workers.

## 9.6.1 Menu Planning

Menus should provide:

- light, easily digested food;
- non-stimulating drinks (fruit juices, water, lemonade, bouillon);
- light desserts, fruits, milk-based desserts, cookies; and
- high-energy snacks (plain granola bars, cheese, fresh fruits and vegetables).

AVOID spicy or extremely fatty foods such as pizza, French fries, smoked meat, and hot dogs.<sup>1</sup>

## 9.6.2 Meal Schedules

Schedule regular meals and snacks. Provide snacks and beverages for workers at the rescue site. Be on the lookout for individuals who react to stress by not eating.

## 9.7 Feeding Workers

During a disaster, workers must receive adequate amounts of food. Long hours of work add additional stress. Guard against extreme fatigue by considering the following points:

### 9.7.1 Stress<sup>2</sup>

Stress creates a degree of tension in workers. They may forget about the need to eat, especially if:

- their immediate tasks are urgent and enormous;
- the emergency is overwhelming; or
- sights, sounds, and smells are distressing.

### 9.7.2 Responsibilities

Rescue squad supervisors must:

- allow sufficient time for workers to eat;
- serve meals away from the disaster area;

- serve easily digestible meals; and
- avoid heavy meals.

## 9.7.3 Workers

Rescue workers must:

- drink lots of fluids, especially when working in hot conditions;
- eat four to five times a day, in small amounts;
- eat a variety of nutritious food;
- develop a buddy system with a co-worker and remind each other to take breaks and to eat;
- eat regularly, whether hungry or not; and
- avoid drinking stimulating beverages such as coffee, tea, and caffeinated soft drinks.

Generally, serious fatigue begins after working four to six hours into most responses. If the use of caffeinated beverages could be delayed for at least four hours, personnel would gain the best physiological benefit from them.<sup>3</sup>

### 9.7.4 Importance of Nutritious Snacks

Nutritious snacks are especially essential if the disaster continues for any length of time. In particular:

- encourage workers to drink 1 to 2 L (40 to 78 oz) of water per day;
- provide juices or hot beverages; and

<sup>1</sup> Adapted from *Emergency Services Stress: Guidelines for Preserving the Health and Careers of Emergency Services Personnel*. Jeff Mitchell, Grady Bray, Prentice Hall, 1990. Page 122, no. 44.

<sup>2</sup> Adapted from *Disaster Work and Mental Health: Prevention and Control of Stress Among Workers of National Institute of Mental Health*, United States Department of Health and Human Services, 1985-1987. See page 121, no. 35.

<sup>3</sup> *Ibid.*

- replace doughnuts with fruit and nutritious snacks such as muffins, dry fruits, nuts, and granola bars.

## 9.7.5 Working Conditions

If the disaster occurs when the temperature is high (34°C or 90°F), workers should drink a lot of fluids including mineral water and ready-made bouillon, to avoid dehydration. Salt may also be needed.

## 9.7.6 Problem Foods<sup>4</sup>

Pay particular attention to the type of food served to workers performing the difficult task of extracting bodies from a crashed plane or the remains of a fire.

Do not serve:

- chicken legs;
- meat with bones;
- spaghetti; or
- meat with burnt skin or skin that peels off easily and could bring back memories of recent rescue work.

---

## 9.8 Recommendations

To reduce the effects of stress, workers and evacuees should:

- eat at regular intervals;
- eat a variety of foods;
- eat several small meals if appetites are poor; and
- remember the need for additional nutrients.

Remember:

- Disasters place extra demands on the body.
- Disasters disturb eating habits.
- Disaster workers require nutritious food.

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<sup>4</sup> *Ibid.*

# The Food Service in An Emergency Hospital

## 10.1 Introduction

An emergency hospital is a pre-packaged mobile unit equipped to handle 200 patients when it is set up in a suitable building such as a high school. Two shifts require about 260 workers. Pre-packaged units are distributed throughout Canada.

Permission to use the units may be obtained from the Office of Emergency Response Services, Public Health Agency of Canada, Ottawa.

## 10.2 Food Service in Emergency Hospitals

Mobile hospitals do not have kitchen facilities, so ESS and Emergency Health Services may ask the Food Service to fulfill the hospital's food requirements. Identify potential sites for emergency hospitals for the Food Service in advance, to ensure rapid response in an emergency.

### 10.2.1 Essential Service Only

An emergency hospital is streamlined to essentials (minimum food service). Administrators should:

- improvise a kitchen;

- establish a serving area for staff and patients, and equip it with disposable dishes and cutlery; and
- when feasible, use pre-cooked meals.

### 10.2.2 Food Requirements

Three general types of food would satisfy most patients and staff members in an emergency hospital:

- *Clear liquid diet*: juice, bouillon, consommé, sweetened tea or coffee. See Appendix P for more details.
- *Soft diet*: cream soup is the most suitable choice for the intermediate diet (between liquid and full diets). Foods must be easily digestible. See Appendix P for more details.
- *Regular diet*: a simple diet adapted to prevailing emergency conditions and kitchen facilities.

### 10.2.3 Kitchen Staff

Nine FS employees are needed to provide meals for 460 people (staff and patients). They include:

- a supervisor;
- a cook;
- two to three assistant cooks; and
- four helpers.

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## **10.3 The Advanced Treatment Centre (ATC)**

The ATC provides early life-saving care to the seriously injured. It also allocates the injured to available treatment facilities.

### **10.3.1 Snack Provisions**

Limited food is available at Advanced Treatment Centres. Hot beverages and cookies (survival cookies or granola bars) are essential so staff can maintain energy levels.

# Mobile Feeding Unit (MFU)

## 11.1 Introduction

In times of disaster, food does more than relieve hunger and sustain life. A properly timed hot beverage or a hot meal is essential to maintain the morale of evacuees.

## 11.2 An Essential Interim Measure

An MFU provides food for evacuees and workers when regular feeding facilities are temporarily not available.

## 11.3 Reserve Stock

The Public Health Agency of Canada has distributed a limited number of MFUs throughout the country.

## 11.4 The MFU

The MFU is equipped as a self-contained emergency feeding unit (exclusive of fuel and food). Use it to prepare and serve the following:

- one-dish meals, such as canned stews;
- meals in retort pouches;
- freeze-dried foods;

- hot beverages; and
- canned or dehydrated soup.

The MFU includes equipment and supplies for:

- purifying and carrying water;
- starting fires;
- opening cans;
- preparing, cooking, serving, and eating food; and
- cleaning, sanitizing, and garbage disposal.

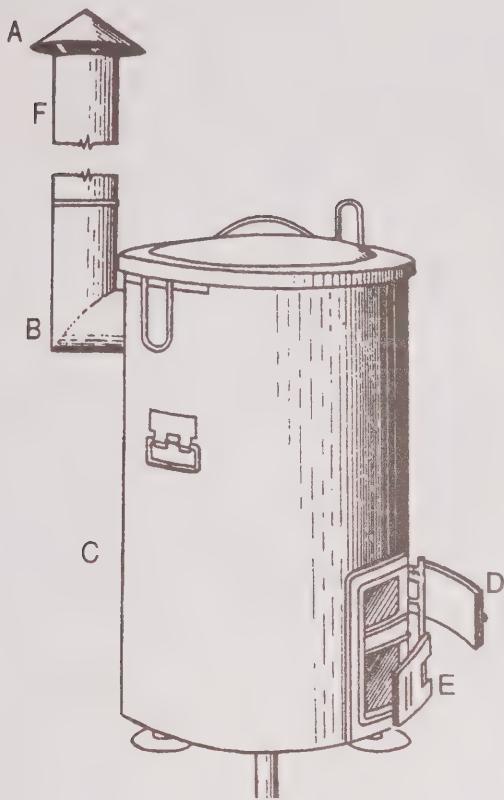
Heating and cooking equipment consists of a "Soyer" cooker with three large pots. Sufficient disposable eating utensils are included for several hours of operation.

## 11.5 Soyer Boilers

### 11.5.1 Working Capacity

The "Soyer boiler" has a 45 litre (10 gallon) "working" capacity; its all-metal construction is suitable for boiling water, hot beverages, or stews.

**Figure 1**



- A – Cowl
- B – Elbow section
- C – Outer casing
- D – Fire box door
- E – Ashpit door
- F – Length of chimney

Type of Fuel	Number of Minutes to Boil Water	Quantity Needed
Propane	35 to 40 min.	for 1 boiler
Wood	55 to 60 min.	5 lbs. (2.25 lbs.)
Chopped Logs	45 to 50 min.	10 lbs. (4.5 lbs.)
Coal	55 to 60 min.	4 lbs. of coal (1.75 lbs.)

*Remember:* Soyer boilers should be placed on a hard, level surface. If they have to be placed on tarmac, concrete or grass, a good layer of sand beneath each boiler will protect the ground from the heat of the fire. Ideally, piped water and drainage should be available nearby. Remove obstructions near boilers which could impede air flow. Fireboxes should face into the wind.

### 11.5.2 Precautions in the Use of Soyer Boilers

To avoid damaging Soyer boiler and pots, observe the following precautions.

- (1) New, tinned surfaces of the inner pots may be covered with protective grease. This grease is not harmful, but it should be removed before the pots are used. Use hot soapy water and rinse with hot water.
- (2) Keep the inner pot at least one-third full of liquid when the unit is in use. If the pot boils dry, it will burn out.
- (3) Maintain a low, steady fire under the pot. This requires frequent additions of a small amount of fuel.

- (4) Pot damage will occur if the fire is built up too high, and if flames are allowed to rise above the level of food.
- (5) Do not extinguish the fire with water as water causes rust and distortion.

Rake embers onto the ground, or allow the fire to burn out. In the latter case, either remove the pot or be sure that it is at least one-third full.

**Figure 2**

- A – Outer casing
- B – Cast-iron circular plate
- C – Fire box
- D – Fire bar section
- E – Inner pan
- F – Lid
- G – Length of chimney
- H – Elbow section
- I – Cowl
- J – Ashpit door
- K – Fire box door

*Remember:* Never lift out a pot full of boiling liquid: it will weigh 100 lb. (51 kg). Always keep the inner pot at least one-third full of liquid when the fire is going. If the pot boils dry, it will burn out. Use one pot for cooking, the other for serving; i.e., one pot will be heating in the Soyer boiler while the second pot is at the serving table. Then reverse their positions for continuous operation.

## 11.6 Layout of Soyer Boilers

Figure 3 shows the layout of Soyer boilers and tables in broad-arrow formation, for a considerable saving in labour.

The boilers are placed at a distance because they produce low-level smoke. Tables may be re-grouped in a line across the front of the kitchen to form a serving area.

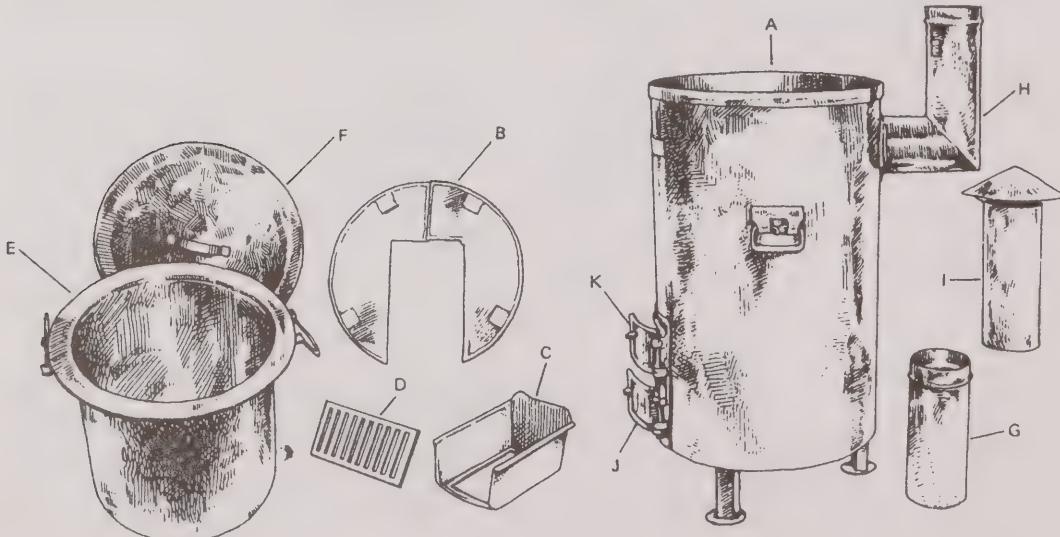
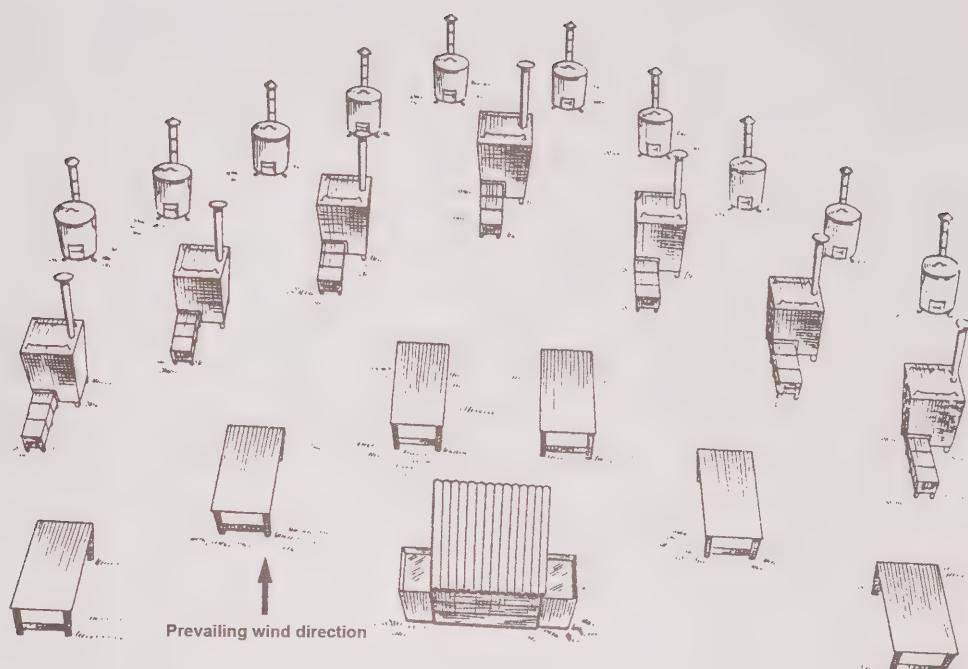


Figure 3

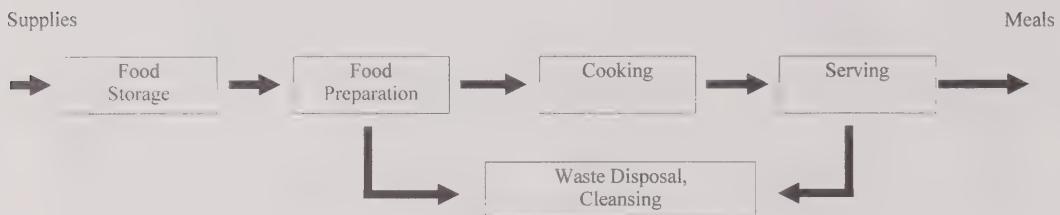


Adapted from *Emergency Planning Guidance to Local Authorities*.

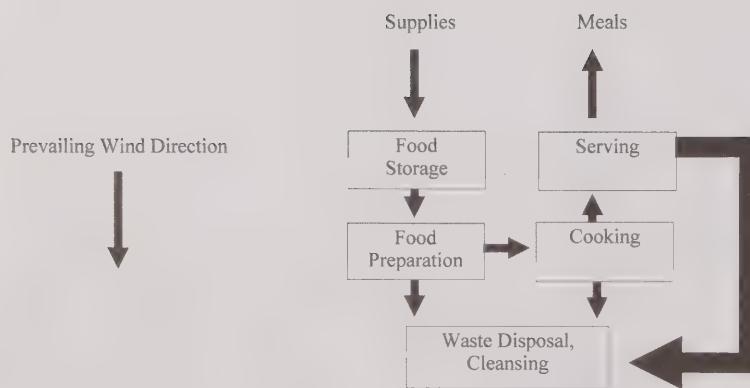
## 11.7 Layout of an Emergency Food Area

A straight line is the simplest layout, but a square or rectangular configuration can be used (Figures 4 and 5).

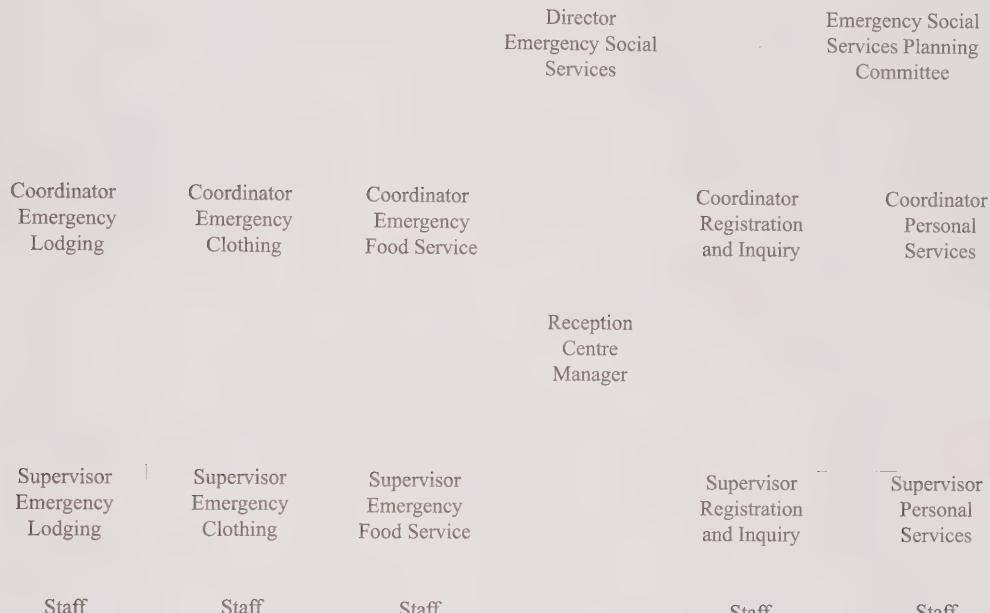
**Figure 4**



**Figure 5**



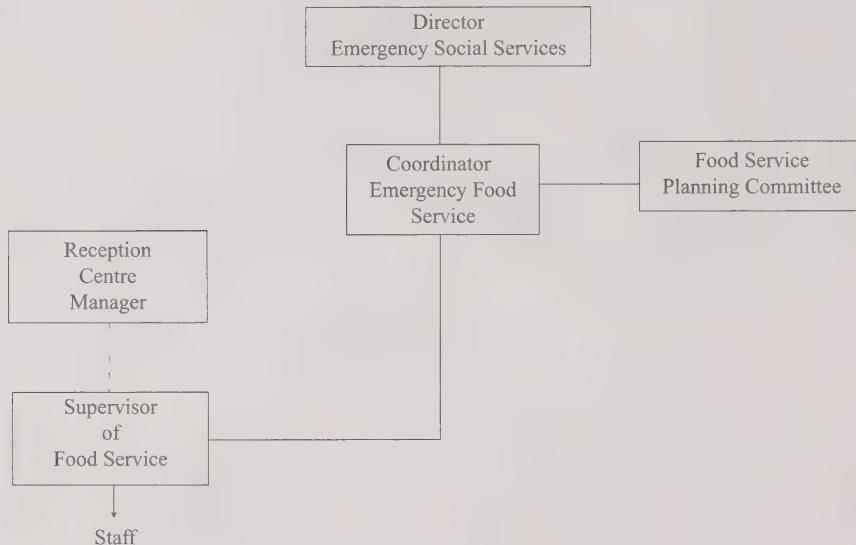
# Emergency Social Services Organization Chart



**Notes:**

1. Supervisors of each service at reception centres report to the coordinator of their assigned services for operational matters and reception centre manager for administrative matters.
2. Depending on the number of evacuees to be received, some of these positions may require assistants.
3. In small municipalities some of the above positions may be combined.
4. Lines of succession are required for all positions.

# Food Service Organization Chart



## Notes:

1. Supervisors of each service report to the:
  - coordinator of their assigned services (operational matters)
  - - - reception centre manager (administration matters).
2. In large communities, the coordinator of each service may require assistance from the Planning Committee.
3. Many reception centres could operate in the same community.

# Food Service Equipment and Supply Needs at Operational Sites

Equipment and Supplies Required by the Emergency Food Service (EFS)	Supplies Required by		Supplies Available in Reception Centre Kit*
	Chief	Supervisor	
Emergency Food Service Manual (Public Health Agency of Canada)	+	+	+
Felt markers	+	+	+
List (with telephone numbers):			
• baby food suppliers	*	*	
• cleaning, cooking, refrigeration, equipment suppliers	*	*	
• cold-storage plant managers	*	*	
• dairy wholesalers	*	*	
• fast food outlets	*	*	
• food caterers and wholesalers	*	*	
• ice outlets	*	*	
• soft drink, bottled water distributors	*	*	
Map of the community	*	*	
Log sheets**	*	*	
Paper clips	*	*	
Pens (ball point)	+	+	+
Scissors		*	
Scratch pads	*	*	
Sign – “Food”		+	+
Stapler, staples	+	+	+
Tables and Chairs	*	*	
Tape (masking)	+	+	+
Telephone	*	*	
Thumb tacks	+	+	+
Traffic arrows		+	+

\* Items marked with an asterisk are not included in the reception centre kit. Purchase these items elsewhere.

\*\* The reception centre kit is provided by the Centre for Emergency Preparedness and Response, Public Health Agency of Canada.

# Food Service Area Required in Square Feet or Square Metres

(Excluding Dining and Serving Area)										
Number of Meals per Day										
	200		400		600		800		1,000	
1. Receiving Area	25 - 2.32 -	45 ft <sup>2</sup> 4.18 m <sup>2</sup>	40 - 3.72 -	60 ft <sup>2</sup> 5.57 m <sup>2</sup>	55 - 5.11 -	75 ft <sup>2</sup> 6.97 m <sup>2</sup>	65 - 6.04 -	85 ft <sup>2</sup> 7.90 m <sup>2</sup>	80 - 7.43 -	100 ft <sup>2</sup> 9.29 m <sup>2</sup>
2. Dry storage	150 - 13.94 -	250 ft <sup>2</sup> 23.23 m <sup>2</sup>	250 - 23.2 -	350 ft <sup>2</sup> 32.52 m <sup>2</sup>	35 - 32.52 -	450 ft <sup>2</sup> 41.81 m <sup>2</sup>	450 - 41.81 -	550 ft <sup>2</sup> 51.10 m <sup>2</sup>	550 - 51.10 -	650 ft <sup>2</sup> 60.39 m <sup>2</sup>
3. Refrigerated area	25 - 2.32 -	35 ft <sup>2</sup> 3.25 m <sup>2</sup>	25 - 2.32 -	35 ft <sup>2</sup> 3.25 m <sup>2</sup>	40 - 3.72 -	55 ft <sup>2</sup> 5.11 m <sup>2</sup>	55 - 5.11 -	70 ft <sup>2</sup> 6.50 m <sup>2</sup>	70 - 6.50 -	90 ft <sup>2</sup> 8.36 m <sup>2</sup>
4. Main Kitchen	400 - 37.18 -	500 ft <sup>2</sup> 46.45 m <sup>2</sup>	700 - 65.03 -	900 ft <sup>2</sup> 83.61 m <sup>2</sup>	1000 - 92.90 -	1300 ft <sup>2</sup> 120.77 m <sup>2</sup>	1400 - 130.06 -	700 ft <sup>2</sup> 157.93 m <sup>2</sup>	1700 - 157.93 -	2100 ft <sup>2</sup> 195.09 m <sup>2</sup>
5. Dishwashing	50 - 4.64 -	75 ft <sup>2</sup> 6.97 m <sup>2</sup>	80 - 7.43 -	125 ft <sup>2</sup> 11.61 m <sup>2</sup>	120 - 11.15 -	175 ft <sup>2</sup> 16.26 m <sup>2</sup>	150 - 13.94 -	225 ft <sup>2</sup> 20.90 m <sup>2</sup>	180 - 16.72 -	250 ft <sup>2</sup> 23.23 m <sup>2</sup>
6. Trash and Garbage Storage	35 - 3.25 -	50 ft <sup>2</sup> 4.64 m <sup>2</sup>	60 - 5.57 -	75 ft <sup>2</sup> 6.97 m <sup>2</sup>	90 - 8.36 -	110 ft <sup>2</sup> 10.22 m <sup>2</sup>	115 - 10.68 -	135 ft <sup>2</sup> 12.54 m <sup>2</sup>	140 - 13.01 -	165 ft <sup>2</sup> 15.33 m <sup>2</sup>
7. Employee Lockers, Toilets	45 - 4.18 -	60 ft <sup>2</sup> 5.57 m <sup>2</sup>	60 - 5.57 -	75 ft <sup>2</sup> 6.97 m <sup>2</sup>	70 - 6.50 -	85 ft <sup>2</sup> 7.90 m <sup>2</sup>	85 - 7.90 -	100 ft <sup>2</sup> 9.29 m <sup>2</sup>	100 - 9.29 -	115 ft <sup>2</sup> 10.68 m <sup>2</sup>
Total Kitchen and Related Areas	730 - 67.82 -	1015 ft <sup>2</sup> 94.29 m <sup>2</sup>	1215 - 112.87 -	1620 ft <sup>2</sup> 150.50 m <sup>2</sup>	1825 - 169.54 -	2250 ft <sup>2</sup> 209.03 m <sup>2</sup>	2320 - 215.53 -	2865 ft <sup>2</sup> 264.77 m <sup>2</sup>	2820 - 261.98 -	3470 ft <sup>2</sup> 322.36 m <sup>2</sup>
Square Feet per Person		3.6 ft <sup>2</sup>		3.0 ft <sup>2</sup>		3.0 ft <sup>2</sup>		2.9 ft <sup>2</sup>		2.8 ft <sup>2</sup>
Square Metres per Person		.33 m <sup>2</sup>		.28 m <sup>2</sup>		.28 m <sup>2</sup>		.27 m <sup>2</sup>		.26 m <sup>2</sup>

## Items notes regarding numerical categories:

1. This does not include an exterior receiving area.
2. Assumes an average three-week supply. This area may be adjusted proportionately for different purchasing policies.
3. Reach-in refrigeration can be used instead of walk-in refrigeration.
4. Includes preparation areas and main cooking departments, plus pot washing.
5. Includes garbage can washing and storage areas. Each function may need a separate area.

Adapted from *Commercial Kitchens*, 1988.

## Food Service Log Sheet\*

1. Date: \_\_\_\_\_
2. Page \_\_\_\_\_ of \_\_\_\_\_
3. Reception Centre's Location: \_\_\_\_\_
4. Name of Recorder: \_\_\_\_\_

# Accounting Log Sheet

## Equipment & Supplies

# Donation Log Sheet (Food)

The supervisor should contact the public health inspector to ensure food safety. The food supervisor at the reception centre should also keep a list of prepared foods which could pose health risks.

**The following are a must:**

1. Type of food	2. Time prepared		
– soup	<input type="text"/>	<input type="text"/> a.m.	<input type="text"/> p.m.
– sandwiches	<input type="text"/>	<input type="text"/> a.m.	<input type="text"/> p.m.
– hot meals	<input type="text"/>	<input type="text"/> a.m.	<input type="text"/> p.m.
– others	<input type="text"/>	<input type="text"/> a.m.	<input type="text"/> p.m.
3. Time of arrival	<input type="text"/>	a.m.	<input type="text"/> p.m.
4. Must be served by	<input type="text"/>	a.m.	<input type="text"/> p.m.
5. Needs to be refrigerated	yes	<input type="text"/>	no <input type="text"/>
6. Ready to serve	yes	<input type="text"/>	no <input type="text"/>
7. Notify public health inspector	yes	<input type="text"/>	no <input type="text"/>
8. Name of Donor	<hr/>		
9. Address	<hr/>		
10. Telephone (day)	<hr/>	(night)	<hr/>

**Note:** If food donations are sent from your reception centre to another reception centre, indicate: time of departure, destination, name of recipient, and reason for shipment.

Reception centre's location 

---

Supervisor's signature 

---

# Food Directory

List the name, address, and telephone number of the following:

**1. Alerting Staff**

- Food service coordinator
- Food supervisors
- Cooks
- Kitchen helpers
- Public health inspectors

**2. Associations**

- Professionals (dietitians, home economists, nutritionists, public health)
- Hotel/motel managers
- Restaurants
- Special interest (such as diabetes)

**3. Eating Establishments**

- Cafeterias (government stores, schools, universities, etc.)
- Coffee shops
- Fast-food outlets
- Restaurants

**4. Equipment and Supplies**

- Cleaning agencies
- Cold storage plants
- Ice outlets
- Stove and fuel companies
- Sanitation

**5. Mobile Facilities**

- Field kitchens
- Meals-on-wheels
- Mobile canteens
- Mobile kitchens

**6. Suppliers**

- Baby food suppliers
- Bottled water suppliers
- Fresh fruit and vegetable suppliers
- Water suppliers

**7. Others**

- Bakeries
- Dairies
- Food processors
- Food retailers and wholesalers
- Grocery stores and supermarkets
- Meat producers
- Soft drink distributors

**8. Volunteer Organizations**

- Canadian Red Cross
- Church groups
- Salvation Army
- Service clubs

# Importance of an Adequate Water Supply

## Introduction

Humans can live several days without food but can only survive a few days without water. Infants and young children can suffer from dehydration very quickly. The first symptoms of dehydration are nausea, fatigue, excessive perspiration, and dry skin.

Adults need to drink at least 1 litre (4 cups) of water daily and children need to drink 1.5 litres (6 cups).

Emergency Food Service staff must be told about water shortages immediately. Staff must ensure safe water is always available.

*Note: Municipal or provincial public health authorities determine whether water is safe to drink. Their federal equivalent is the Environmental Health Service, Health Canada.*

## 1. Choosing a Water Source

About 40 percent of our water requirements are provided by the foods we eat. Principle sources include milk, fruits, and vegetables. The remainder must come from other liquids.

Follow these water supply guidelines.

- Use water from aqueducts if it has been declared safe by local public health authorities.

- As an alternative, use water from springs and wells. Water from underground sources is usually safer than water from surface areas. Consult your public health representative.
- Finally, use bottled water (spring, mineral, carbonated). Water supplies might be available from industries, including dairies, breweries, canning, soda pop and juice factories, and ice cube makers. Other sources: hot water tanks or melted snow.
- After contacting the public health officer, use water from surface areas as a last resort. Obtain it in the following order: rivers, streams, lakes or pools.

## 2. Precautions to Observe With Surface Water

Be certain your water source is far from potential sources of contamination, including:

- sewage
- dumps or cesspools

Choose the clearest water possible. Reject water with an oily surface film. However, do not assume that clear water is safe to drink.

### 3. Water Purification

If you suspect the water is contaminated, boil it for 10 minutes or treat it with a chlorine solution or water purification tablets. Let the water stand for 30 minutes, to permit proper penetration.

The following tables indicate the quantity of purification compound you will need.

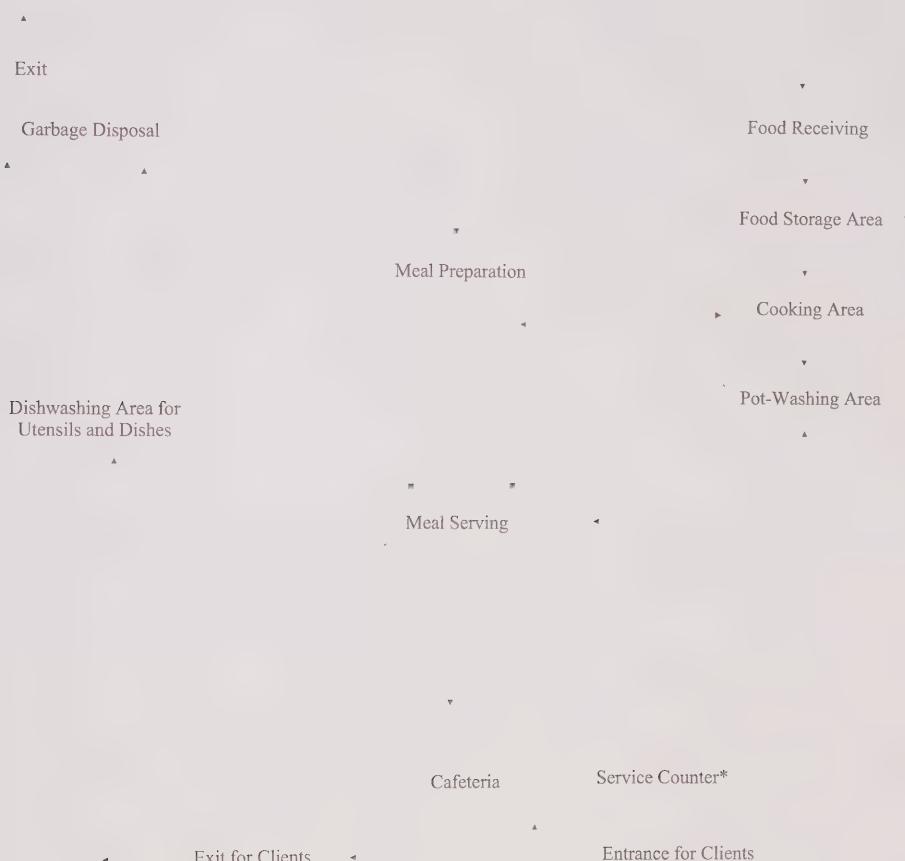
**Table 1** – If the **water is clear**, add to 4.5 litres (1 gallon) of water 4 drops of chlorine bleach or the number of tablets indicated on the bottle.

**Table 2** – If the **water is cloudy**, add to 4.5 litres (1 gallon) of water 10 drops of chlorine bleach or the number of tablets indicated on the bottle.

**Note:** Remember, purification compounds must be in contact with the water for at least 30 minutes to kill bacteria. Stir the water well. The treated water should have a slight chlorine or iodine taste.

# Outdoor Feeding Site – Traffic Flow

A suggested traffic-flow pattern for an outdoor feeding site.

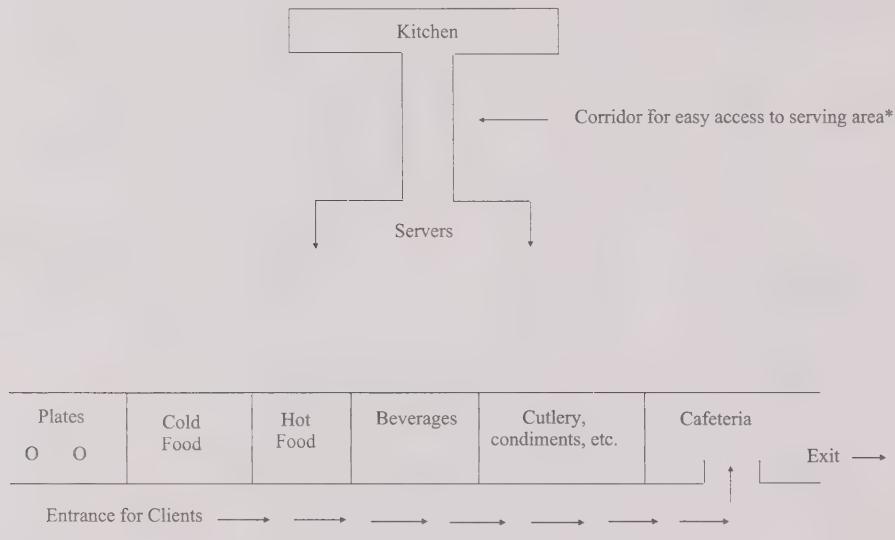


\*Avoid crossed paths between clean and dirty dishes, as well as food and garbage.

## Improvised Serving-Line Arrangements (1)

To serve about 200 people an hour, arrange the following line service:

## 1. Single-line arrangements: one service counter

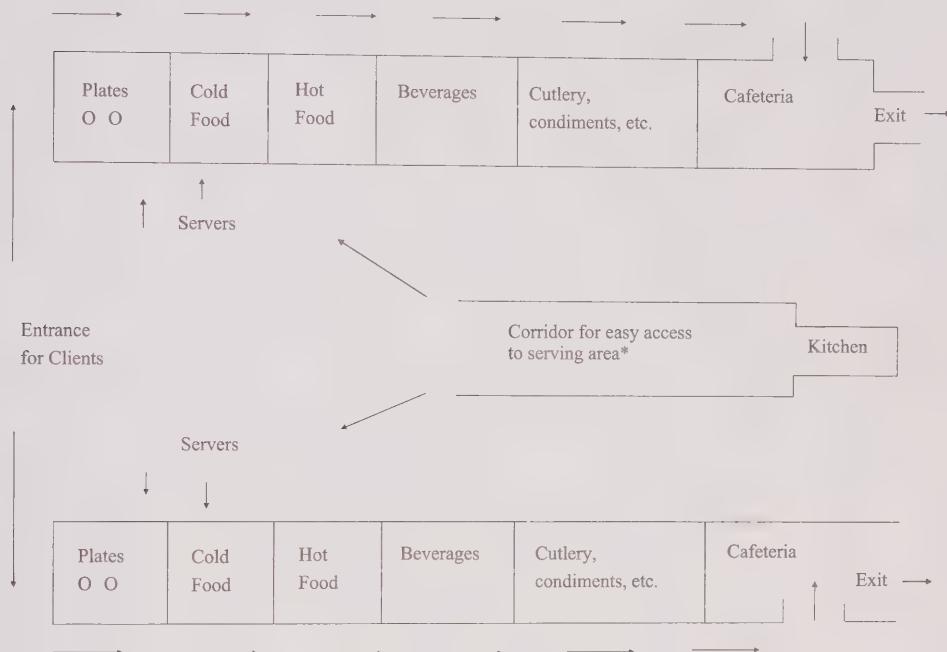


Provide one service counter for up to 200 clients an hour, and one additional counter for every 200-person addition. Always follow the above format.

\* Staff use a staff-only service corridor to quickly replenish service counters with items prepared in the kitchen.

## Improvised Serving-Line Arrangements (2)

### 2. Double-line arrangements: 2 service counters



\* To ensure food replenishment, provide an exclusive pathway for staff between the kitchen and service counters.

# Food Requisition Guide

## BEVERAGES

Examples	Characteristic and Additional Information	Institutional Purchasing Format (per case)	Portion Size	50 Persons	200 Persons	500 Persons
<b>Milk</b>						
- Milk	Refrigeration: 11 days	16 x 1 L	180 mL (6 oz.)	1 case	2 cases	5 cases
- Milk	UHT*	16 x 1 L	180 mL (6 oz.)	1 case	2 cases	5 cases
- Evaporated milk*	1 part milk/ 1 part water	48 cans of 385 mL (14 oz.)	180 mL (6 oz.)	13 cans	1 case	3 cases
- Powdered milk*	1 part powder/ 2 parts water	10 kg (25 lbs.)	180 mL (6 oz.)	1 bag	4 bags	10 bags
<b>Coffee/Tea</b>						
- Instant coffee	1 portion (1 tsp.)	20 jars of 283 g (10 oz.)	180 mL (6 oz.)	1 pot	4 pots	10 pots
- Coffee (grains)	1 portion (1 tbsp.)	20 bags of 340 g (12 oz.)	180 mL (6 oz.)	1 bag	4 bags	10 bags
- Coffee whitener	1 portion (1 tsp.)	12 jars of 810 g (26 oz.)	1 jar	4 jars	10 jars	
- Hot chocolate	1 envelope	18 boxes of 180 mL 10 envelopes	5 boxes (6 oz.)	20 boxes	50 boxes	
- Creamers/milkets	Refrigerate	100 creamers of 15 mL (1/2 oz.)	1 creamer	1 box	4 boxes	10 boxes
- Sugar	Individual packet	3000 packets	1 packet	50 packets	200 packets	500 packets
- Tea bags	Individual tea bag	1000 tea bags	1 bag	50 bags	200 bags	500 bags
<b>Juices</b>						
- in cans: fruits or vegetables		12 cans of 1.36 L (48 oz.)	180 mL (6 oz.)	1/2 case	2 cases	5 cases
- frozen concentrate	1 part concentrate to 3 parts water	24 cans of 474 mL (16 oz.)	180 mL (6 oz.)	1/2 case	2 cases	5 cases
<b>Soft drinks</b>		24 cans of 300 mL (10 oz.)	1 can	2 cases	9 cases	20 cases
<b>Bottled water</b>		12 bottles of 750 mL (24 oz.)	180 mL (6 oz.)	1 case	4 cases	10 cases

\* Needs refrigeration as soon as container is opened

**SOUPS**

Examples	Characteristic and Additional Information	Institutional Purchasing Format (per case)	Portion Size	50 Persons	200 Persons	500 Persons
<b>Cans</b>						
– Hearty soup	Without dilution	24 boxes of 540 mL (19 oz.)	180 mL (6 oz.)	17 boxes	3 cases	7 cases
– Ham and pea	Without dilution	24 boxes of 796 mL (28 oz.)	180 mL (6 oz.)	1/2 case	2 cases	5 cases
<b>Condensed</b>						
– Consommé	Dilution:	12 cans of 1.36 L (48 oz.)	180 mL (6 oz.)	3 boxes	1 case	3 cases
– Cream	1 part condensed to 1 part water	12 cans of 1.36 L (48 oz.)	180 mL (6 oz.)	3 boxes	1 case	3 cases
– Vegetable		12 cans of 1.36 L (48 oz.)	180 mL (6 oz.)	3 boxes	1 case	3 cases
– Rice and tomato		12 cans of 1.36 L (48 oz.)	180 mL (6 oz.)	3 boxes	1 case	3 cases
– Minestrone		12 cans of 1.36 L (48 oz.)	180 mL (6 oz.)	1/2 case	2 cases	5 cases
<b>Dehydrated</b>						
– Beef noodle	Dilution according to directions on package	24 boxes (2 envelopes per box)	180 mL (6 oz.)	9 envelopes	3/4 case	3 cases
– Cream		12 boxes (2 envelopes per box)	180 mL (6 oz.)	9 envelopes	1 case	4 cases
– Vegetable		12 boxes (2 envelopes per box)	180 mL (6 oz.)	9 envelopes	1 case	4 cases
– Minestrone		24 boxes (2 envelopes per box)	180 mL (6 oz.)	9 envelopes	3/4 case	3 cases
– Chicken noodle	6 portions/envelope	12 boxes (2 envelopes per box)	180 mL (6 oz.)	9 envelopes	1 case	4 cases
– Tomato and vegetable		24 boxes (2 envelopes per box)	180 mL (6 oz.)	9 envelopes	3/4 case	3 cases
– Onion		12 envelopes	180 mL (6 oz.)	9 envelopes	3 cases	8 cases

**MAIN MENU**

Canned goods	Contents: Meat and vegetables	24 cans x 425 g (15 oz.)	120 g (4 oz.)	15 cans	2 1/2 cases	6 cases
– Irish stew (beef, meatballs, potatoes, chicken, turkey)		24 cans x 425 g (15 oz.)	120 g (4 oz.)	15 cans	2 1/2 cases	6 cases
– Spaghetti and meatballs		24 cans x 425 g (15 oz.)	120 g (4 oz.)	15 cans	2 1/2 cases	6 cases
– Beef ravioli		24 cans x 425 g (15 oz.)	120 g (4 oz.)	15 cans	2 1/2 cases	6 cases
– Pork and beans		12 cans x 1.36 L (48 oz.)	250 mL (8 oz.)	9 cans	3 cases	8 cases

Examples	Characteristic and Additional Information	Institutional Purchasing Format (per case)	Portion Size	50 Persons	200 Persons	500 Persons
– Meatloaf (Kam, Klick, Prem)		24 cans x 340 g (12 oz.)	90 g (3 oz.)	1/2 case	2 cases	5 cases
– Chicken flakes		12 cans x 425 g (15 oz.)	90 g (3 oz.)	1 case	4 cases	9 cases
– Pork shoulder		6 cans x 680 g (24 oz.)	90 g (3 oz.)	8 cans	5 cases	11 cases
– Cooked ham		6 cans x 680 g (24 oz.)	90 g (3 oz.)	8 cans	5 cases	11 cases
– Pink salmon		6 cans x 1.7 kg (4 lbs.)	90 g (3 oz.)	3 cans	2 cases	5 cases
– Tuna		6 cans x 1.7 kg (4 lbs.)	90 g (3 oz.)	3 cans	2 cases	5 cases
– Sardines		100 cans x 100 g (31/2 oz.)	100 g (31/2 oz.)	50 cans	2 cases	5 cases
<b>Frozen*</b>						
Complete individual (TV- 8 boxes dinner style)						
– Baked beef dinner		1 box	7 cases	25 cases	63 cases	
– Turkey scallops		8 boxes	1 box	7 cases	25 cases	63 cases
– Chicken parmesan		8 boxes	1 box	7 cases	25 cases	63 cases
– Filet of sole		8 boxes	1 box	7 cases	25 cases	63 cases
– Lasagna		8 boxes	1 box	7 cases	25 cases	63 cases
– Salisbury steak		12 boxes	1 box	5 cases	17 cases	42 cases
– Beef patty, chicken or turkey		12 boxes	1 box	5 cases	17 cases	42 cases
– Macaroni and cheese also with beef		12 boxes	1 box	5 boxes	17 cases	42 cases
– Eggrolls		20 boxes	1 box	3 cases	10 cases	25 cases
– Cabbage rolls		30 boxes	1 box	2 cases	7 cases	17 cases
– Eggs		12 dozen/per case	2 eggs	1 case	3 cases	5 cases
<b>VEGETABLES – MISCELLANEOUS</b>						
<b>Cans</b>						
– Carrots	20 portions per box	6 x 2.84 L (100 oz.)	125 mL (4 oz.)	1/2 case	2 cases	5 cases
– Peas	20 portions per box	6 x 2.84 L (100 oz.)	125 mL (4 oz.)	1/2 case	2 cases	5 cases
– Others	20 portions per box	6 x 2.84 L (100 oz.)	125 mL (4 oz.)	1/2 case	2 cases	5 cases

\* A surplus of 7 to 10 meals is included with these quantities.

Examples	Characteristic and Additional Information	Institutional Purchasing Format (per case)	Portion Size	50 Persons	200 Persons	500 Persons
<b>MISCELLANEOUS</b>						
<b>Frozen</b>						
– Carrots	25 portions per bag	6 x 2.27 kg (5 lbs.)	125 mL (4 oz.)	2 bags	8 bags	4 cases
– Beans	25 portions per bag	6 x 2.27 kg (5 lbs.)	125 mL (4 oz.)	2 bags	8 bags	4 cases
– Mixed vegetables	25 portions per bag	6 x 2.27 kg (5 lbs.)	125 mL (4 oz.)	2 bags	8 bags	4 cases
<b>Crackers</b>						
– Soda crackers	Ind. portion (2 per pack.)	300 packets	1 packet	1/3 case	1 case	2 cases
– Cookies (social tea, arrowroot)	Ind. portion (2 per pack.)	200 packets	1 packet	1/4 case	1 case	3 cases
– Melba toast	Ind. portion (2 per pack.)	200 packets	1 packet	1/4 case	1 case	3 cases
– Rusks		12 boxes x 250 g	2 rusks (per package)	3 boxes	1 case	3 cases
– Bread	675 g = 26 slices	1 loaf	2 slices	4 loaves	16 loaves	40 loaves
<b>Butter or margarine</b>						
– Butter (pat)	Ind. portion (5 to 10 g)	4 boxes of 200	2 portions	1/2 box	1/2 case	1 1/2 cases
– Peanut butter	Ind. portion (18 g)	200 per box	1 portion	1/4 box	1 case	2 1/2 cases
<b>Cereals</b>						
– Ready to serve cereals	In bulk	24 boxes x 350 g (6 oz.)	175 mL	3 boxes	1/2 case	1 1/2 cases
	Individual portion	1 box	50 boxes	200 boxes	500 boxes	
<b>Jam (portions)</b>						
– Jam	Individual portion	200 x 14 g	1 portion	1/4 case	1 case	2 1/2 cases
– Jellies	Individual portion	200 x 14 g	1 portion	1/4 case	1 case	2 1/2 cases
– Marmalades	Individual portion	200 x 14 g	1 portion	1/4 case	1 case	2 1/2 cases

Examples	Characteristic and Additional Information	Institutional Purchasing Format (per case)	Portion Size	50 Persons	200 Persons	500 Persons
<b>Fresh fruits</b>						
- Bananas	Individual portion	18 kg = 40 lbs.	1 fruit	1/2 case	2 cases	4 cases
- Oranges	Individual portion	138 (per case)	1 fruit	1/2 case	2 cases	4 cases
- Pears	Individual portion	138 to 140	1 fruit	1/2 case	2 cases	4 cases
- Apples	Individual portion	140 (per case)	1 fruit	1/2 case	2 cases	4 cases
<b>Dried fruits</b>						
- Dried raisins	Individual box (14 g = 1 portion)	336 boxes	1 box	50 boxes	1 case	2 cases
<b>Cheese</b>	Individual portion	100 x 21 g (3/4 oz.)	1 packet	1/2 case	2 cases	5 cases

#### INFANTS (4 TO 12 MONTHS)\*

Examples	Market Format (in Stores)	Amount per Unit	Number of portions per case (1 case could feed per day)			
			4 to 5 Months	6 to 7 Months	8 to 9 Months	11 to 12 Months
<b>Cereals</b>	12 boxes x 227 g (8 oz.)	55 tbsp.	83 children	83 children	165 children	130 children
	12 boxes x 454 g (16 oz.)	110 tbsp.	165 children	165 children	330 children	265 children
<b>Pureed fruits</b>	24 jars x 130 mL (4 1/2 oz.)	9 tbsp.		110 children	45 children	27 children
	24 jars x 215 mL (7 1/2 oz.)	14 tbsp.		170 children	65 children	42 children
<b>Pureed vegetables</b>	24 jars x 130 mL (4 1/2 oz.)	9 tbsp.		110 children	45 children	24 children
	24 jars x 215 mL (7 1/2 oz.)	14 tbsp.		170 children	65 children	37 children
<b>Pureed meats</b>	24 jars x 100 mL (3 1/2 oz.)	7 tbsp. 1 jar/per child			56 children	24 children

To calculate the number of cases needed:

1. determine the number of children in each age group;
2. calculate the number of cases required for each age group;
3. determine the total.

\* Forecasts are based on sample menus for infants aged 4 to 12 months (Sainte-Justine Hospital, Montréal, Quebec).

# Kitchen Resource Survey Form

Name of Restaurant \_\_\_\_\_

Address of Owner \_\_\_\_\_

Telephone of Owner \_\_\_\_\_

In Case of Emergency \_\_\_\_\_

Manager - Name \_\_\_\_\_

Address - Telephone \_\_\_\_\_

Personnel	Number	Maximum Capacity for Meals Prepared per Hour		
- cooks		1-	50	
- assistant cooks		50-	100	
- servers		200-	500	
- dishwashers		800-	1000	
- cleaners		1000+		

Kitchen Equipment	Electricity	Energy Sources		Capacity	Functional
		Gas			
- ovens					
- steamers					
- hot plates					
- coffee urn					
- kitchen range (stove)					

Warehouse	Quantity	Capacity	Functional
- reserve (dried foods)			
- refrigerators			
- cold rooms			
- freezers			

## Food Service

- meal covers
- serving utensils
- counters
- serving tables
- trays
- miscellaneous

Type of Restaurant \_\_\_\_\_

Maximum Capacity (seating) \_\_\_\_\_

Date: \_\_\_\_\_

Signature: \_\_\_\_\_

# Infants and Young Children

## Introduction

- Infants deprived of water and milk suffer rapidly from dehydration. If milk is not available in the first few hours, give a bottle with sugared water which has been boiled.
- The risk of contamination increases during a disaster, so prepare bottles carefully.
- Breast-feeding is best in terms of avoiding contamination. Nursing mothers should receive food and water first.

## 1. How to Satisfy the Nutritional Needs of Infants

- For the very young child, from zero to six months, milk is the main food. If the child consumes the recommended daily milk intake, most nutritional needs will be met. It is important to consider the source of milk to assess the need for supplements.

Age	No. of Bottles	Quantity of Milk per Feeding	Average Total per Day
Newborn to 1 week	6 to 10	60 to 90 ml (2-3 oz)	550 cc (20 oz)
1 week to 1 month	6 to 8	90 to 120 ml (3-4 oz)	700 cc (25 oz)
1 to 3 months	5 to 6	120 to 180 ml (4-6 oz)	850 cc (30 oz)
3 to 5 months	4 to 5	180 to 210 ml (6-7 oz)	850 cc (30 oz)
6 to 12 months	3 to 4	210 to 240 ml (7-8 oz)	700 cc (25 oz)

- Introduce solid foods, one food item at a time, in the following order: cereals, vegetables, fruits, and meat.
- Children aged one to six consume the same foods as adults, with the exception of meat. Children aged one to two need ground meat; for the two to six year olds, cut meat into small pieces.
- These children can drink whole or 2% milk. Skim milk is for children who have reached two years of age.

## 2. Possible Sources of Milk

### Breast-feeding

- Nursing mothers should continue to breast-feed their children, if possible. Emotional problems and anxiety, however, might reduce the flow of milk. Milk production should resume with encouragement in a calm environment.

### Nursing formulas

- 3 formats
  - ready-to-serve
  - concentrated (follow directions)
  - powdered (follow directions)
- These formulas meet all the baby's needs and are already sterilized.
- If there are supply shortages, reserve these formulas for infants aged zero to six months since they do not tolerate cow milk well, even if it is diluted.

### Alternate solutions (not as suitable)

- Canned evaporated milk
- 2% milk
- Fresh whole milk
- Skim milk
- Whole goat milk
- Skim milk powder
- For preparation methods, consult Table 1, Alternative Solutions.

**Note:** It is not necessary to re-heat bottles before serving them to infants.

## 3. Organization of Milk Preparation

### Material needed:

- can opener
- nipples
- mixing bowl
- formula
- electric mixer
- clean apron
- measuring utensils
- nail brush
- weight scale
- soap
- measuring spoons
- funnel
- tongs
- disposable napkins
- large cooking pots
- strainer
- plastic bottles

- hair nets (if possible)
- disposable bottle liners
- masking tape\*

### Sterilization

- If a service provides sterilized formula, be certain to maintain the service. You do not need to sterilize bottles or the water.
- If supplies of disposable nipples and bottles are available and formulas are ready to use, the laboratory person can concentrate on making therapeutic milk.
- If a sterilization service is lacking, use the terminal heating method. This consists of boiling formula in the feeding bottles after nipples and caps have been attached.

### Terminal Sterilization of Feeding Bottles

#### *The procedure:*

- Wash utensils and bottles in hot soapy water; rinse well in hot water.
- Scrub nipples and check the opening for proper milk flow, then boil for five minutes.
- Wash tops of cans, if canned milk is used.
- Measure ingredients. If powdered milk is used, add a small amount of water gradually to the milk powder to obtain a smooth paste. Add other ingredients, if necessary, and keep adding water until the desired consistency is achieved.
- Pour the mixture through an ordinary funnel or use an improvised funnel made of waxed paper or aluminum foil.
- Affix nipples to the bottles and cover them with a cap. Don't screw caps on too tightly, or steam cannot circulate around the nipples.

\* To identify bottles containing therapeutic milk.

- Boil bottles for 25 minutes in a pot filled with water. Be certain the water level is slightly below milk level.
- Cool at room temperature (about two hours).
- Tighten the cap on the nipple and refrigerate at 4 to 7°C (40 to 45°F).
- If refrigeration facilities are adequate, prepare sufficient bottles for a 24-hour period. If refrigeration is not available, wrap the bottles in wet newspaper. The milk will remain good for about two or three hours.

We wish to thank the Department of Dietetics, Sainte-Justine Hospital, Montréal, Quebec, for providing these guidelines.

# Food Service Staff Requirements

The number of workers needed in an emergency situation varies according to the number of evacuees, the size and layout of the FS area, the availability of safe water, electricity, and equipment.

Three eight-hour work shifts are recommended to provide 24-hour service.

The following chart covers six types of FS facilities. The tables indicate the number of people to be fed per hour and the number of required servers, along with their job titles.

Various Types of Facilities	Staff Required to Feed (per hour)			
	the following number of people	200	500	1000

## A. Reception Centre or Designated Food Service Area

supervisor	1	1	2
chef	1	1	1
cooks	2	3	6
cook helpers	1	2	4
servers	2	4	8
cleaners	2	3	4
dishwashers	2	3	4
traffic directors	2	4	6
<b>Total</b>	13	21	35

## B. Kitchen (Food Preparation Only)

supervisor	1	1	1
chef	1	1	1
cooks	2	3	6
cook helpers	1	2	4
cleaners	2	3	4
dishwashers	2	3	4
<b>Total</b>	9	13	20

## C. Outdoor Feeding

supervisor	1	1	1
supply officer	1	1	1
chef	1	1	1
cooks	2	4	8
cook helpers	2	3	5
servers	2	4	8
cleaners	2	3	4
dishwashers	2	3	4
traffic directors	2	4	6
<b>Total</b>	15	24	38

Various Types of Facilities	Staff Required to Feed (per hour)			
	the following number of people	200	500	1000

## D. Mobile Kitchen

supervisor	1	1	1
servers	2	4	8
cleaners	2	3	4
driver	1	1	1
traffic directors	2	4	6
<b>Total</b>	8	13	20

## E. Mobile Canteen

supervisor	1	1	1
servers	3	4	6
helpers	1	1	2
traffic directors	1	2	3
<b>Total</b>	6	8	12

## F. Mobile Feeding Unit

supervisor	1	1	1
cooks	1	1	2
assistant cooks	2	2	3
helpers	2	2	4
<b>Total</b>	6	6	10

# Kitchen Hygiene in Disaster Situations

Kitchen hygiene is more difficult to achieve under emergency conditions than under normal conditions. Kitchen staff must understand the risk of bacterial food poisoning in emergency situations and must know how to prevent food contamination.

## 1) Care in Handling Food

- Clean and proper handling of food is a matter of habit. People who have acquired proper habits will rise above the handicap of difficult conditions and so reduce risks to a minimum. Handle food only when necessary and then only with scrupulously clean hands.
- Food handlers should maintain good health. They should eat regularly and avoid excessive fatigue. Persons showing symptoms of ill health should be withdrawn from duty.
- Food should remain in storage until it is required, and packages should not be opened unnecessarily.
- Tinned meat and tinned meat products should be eaten with a minimum of delay after opening, to avoid contamination. Contents of opened tins should not be left over to the next day.
- Cover all food until it is needed.
- Cooking food for storage in insulated containers: cook at the hottest possible temperature – above 60°C (140°F) – or bring to a boil and close lids immediately. Consume the food as soon as possible, no longer than three hours after storage in the containers.

**Note:** When in doubt about any food, whether cooked or uncooked, do not use it.

## 2) Sources of Food Poisoning

Food poisoning occurs when:

- food is prepared too far in advance of being eaten;
- meat or poultry (barbecued, roasted or boiled) has not been stored at a safe temperature;
- hot food is not kept at a temperature above 60°C (140°F);
- food handlers contaminate hot or cold food;
- equipment or food containers are dirty; and
- rodents, birds or insects have access to food.

*Note: A number of factors cause outbreaks of food poisoning. The best way to avoid food poisoning is to consume food as soon as possible after preparation.*

# Letter of Agreement Between the District of Metchosin and the Good Lunch House

Authorization: (Invalid without seal)

To: GOOD LUNCH HOUSE

The District of Metchosin Emergency Social Services (ESS) requests that you provide the following single service:

FOOD

in accordance with previous arrangements to the following persons or ESS authority for the following dates:  
September 22, 23, 24, 1990

1. Garry Peter	3. Mary Doe
2. Don Smith	4. Janet Doe

Date: June 15, 1990

No. 2007

Metchosin ESS Director  
4450 Happy Valley Road  
Victoria, B.C.  
(474-8187)

We wish to thank the Ministry of Social Services and Housing and the District of Metchosin, Victoria, B.C., for permission to reprint this letter of agreement.

# **Letter of Agreement Between the New Brunswick Department of Health and Community Services and Tingley's Save Easy Manager**

An Agreement to provide services between the Department of Health and Community Services, Region III, and David B. Chisholm representing Tingley's Save Easy of the city of Fredericton, N.B.

In my capacity as Food Manager I, David B. Chisholm, will assist the Department of Health and Community Services by supplying on request any food requested by the above mentioned Department. This service will be provided on a 24 hour basis during the emergency.

I further agree to bill the Department of Health and Community Services for any such food.

Date \_\_\_\_\_

Number 00784

---

Regional Director  
Emergency Social Services  
Fredericton, N.B.

---

Food Manager  
Tingley's Save Easy  
Fredericton, N.B.

We wish to thank the N.B. Department of Health and Community Services and Tingley's Save Easy Food Manager in Fredericton, N.B., for permission to reprint this letter of agreement. \*\*

# Letter of Agreement Between Disaster Social Services, City of Edmonton, and Food and/or Catering Suppliers

**Organization Name:**  
 Canada Safeway Ltd.  
 16011 – 116 Avenue  
 P.O. Box 430  
 Edmonton, Alberta  
 T5J 2K2

**Contact Names:**  
 Mr. J. Whyte, Division Manager  
 Mr. N. Leaf, Retail Operations Manager  
 Mr. K. Deck, Division Controller

<b>Business</b>	<b>Residence</b>
453-6333	458-3471
453-6341	434-2362
453-6424	458-7936

**Edmonton Social Services Contact:**

Garry Chrusch	426-3145	463-6539
Emergency Services, Control Room	428-7990	

**Supplies Available and Time Lines:**

Food supplies to accommodate 6,000 to 8,000 individuals. Food supplies available through Safeway's distribution system to designated reception centres. Lead time: 2 to 3 hours.

**Additional Information:**

Price of the product would be the price in effect at the time of the disaster, i.e. if product is drawn from warehouse facilities, cost plus an up-charge to cover handling; if product is drawn from retail facilities, cost will equal retail price in effect. Safeway would make a sizable donation.

Payment through City of Edmonton "L" Requisition: Yes.

City of Edmonton Signing Authority

**Name:** Garry Chrusch

**Title:** Food Coordinator, Disaster Social Services, City of Edmonton

Signed as correct:

Supplier	April 26, 1990 Date	Food Coordinator Disaster Social Services City of Edmonton	April 11, 1990 Date
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We wish to thank the Disaster Social Services of the City of Edmonton, Alberta, for permission to reprint this letter of agreement.

# Menus for Infants (4 to 12 Months)

Feeding	4 to 5 Months	6 to 7 Months	8 to 9 Months	11 to 12 Months
<b>Morning</b>				
Milk	150-180 mL (5 to 6 oz.)	180-250 mL (6 to 8 oz.)		
<b>Breakfast</b>				
Cereals	45- 60 mL (3 to 4 tbsp.)	45-75 mL (3 to 5 tbsp.)	60-90 mL (1/4 to 1/3 cup)	60-90 mL (1/4 to 1/3 cup)
Milk	150-180 mL (5 to 6 oz.)	180-250 mL (6 to 8 oz.)	180-250 mL (6 to 8 oz.)	180-250 mL (6 to 8 oz.)
Fruits		15-30 mL (1 to 2 tbsp.)	30-60 mL (2 to 4 tbsp.)	60 mL (1/4 cup)
<b>Lunch</b>				
Milk	150-180 mL (5 to 6 oz.)	180-250 mL (6 to 8 oz.)	180-250 mL (6 to 8 oz.)	180-250 mL (6 to 8 oz.)
Meat		15-30 mL (1 to 2 tbsp.)	30-45 mL (2 to 3 tbsp.)	45-60 mL (3 to 4 tbsp.)
Vegetables		15-30 mL (1 to 2 tbsp.)	45 mL (3 tbsp.)	75 mL (1/3 cup)
<b>Afternoon</b>				
Milk	150-180 mL (5 to 6 oz.)			
<b>Dinner</b>				
Milk	150-180 mL (5 to 6 oz.)	180-250 mL (6 to 8 oz.)	180-250 mL (6 to 8 oz.)	180-250 mL (6 to 8 oz.)
Cereals	45- 60 mL (3 to 4 tbsp.)	45-75 mL (3 to 5 tbsp.)	15-30 mL (1 to 2 tbsp.)	
Meat				45-60 mL (3 to 4 tbsp.)
Vegetables			30 mL (2 tbsp.)	60 mL (1/4 cup)
Fruits		15-30 mL (1 to 2 tbsp.)	30 mL (2 tbsp.)	60 mL (1/4 cup)
<b>Night</b>				
Milk	150-180 mL (5 to 6 oz.)			

We wish to thank the Dietetic Department of Sainte-Justine Hospital, Montréal, Quebec, for permission to reprint these menus.

# Menus for Young Children (1 to 6 Years)

	1 to 2 years	2 to 4 years	4 to 6 years
<b>Breakfast</b>			
Meat/Others			30 g (1 oz.) of cheese
Dry Cereals	75 to 125 mL (1/3 to 1/2 cup)	125 mL (1/2 cup)	125 mL (1/2 cup)
Bread	1/2 to 1 slice	1 slice	1 slice
Fruit	1/2 fruit or 60 mL juice (2 oz.)	1/2 fruit	1 fruit
Milk	125 mL whole milk (4 oz.)	180 mL (6 oz.) whole milk or 2%	180 mL (6 oz.)
<b>Morning Snack</b>	1/2 fruit	1/2 fruit	1 fruit
<b>Lunch and Dinner</b>			
Meat	35 to 45 g (1 to 1 1/2 oz.)	45 to 60 g (1 1/2 to 2 oz.)	60 g (2 oz.)
Potatoes, Rice	35 to 45 g (2 to 3 tbsp.)	45 to 60 cc (3 to 4 tbsp.)	60 g (1/4 cup)
Vegetables	35 to 45 g (2 to 3 tbsp.)	45 to 60 cc (3 to 4 tbsp.)	60 g (1/4 cup)
Bread	1/2 fruit	1/2 slice	1/2 slice
Fruit	125 mL (4 oz.) whole milk	1 fruit 180 mL (6 oz.) whole milk or 2%	1 fruit 180 mL (6 oz.)
<b>Afternoon Snack</b>	2 cookies (social tea or arrowroot)	2 cookies (social tea or arrowroot)	4 cookies (social tea or arrowroot)
<b>Night Snack</b>			
Milk	120 mL (4 oz. whole milk)	180 mL (6 oz.) whole milk or 2%	180 mL (6 oz.)
Bread (Biscuits)	2 cookies (social tea or arrowroot)	2 cookies (social tea or arrowroot)	4 cookies (social tea or arrowroot)

*Note: Menus can include butter, margarine, and condiments.*

# Menus for Evacuees

	1st Day	2nd Day	3rd Day
<b>Breakfast</b>	Citrus juice or 1 fresh fruit Muffins, bread or rusks Peanut butter or butter Hot chocolate or tea, coffee, milk	Citrus juice or 1 fresh fruit Hot cereals Hot chocolate or tea, coffee, milk	Citrus juice or 1 fresh fruit Muffins, bread or rusks Cheese or butter Hot chocolate or tea, coffee, milk
<b>Snack</b>	Beverages, cookies, fruit		
<b>Lunch</b>	Cream of mushroom soup or juice Assorted sandwiches Raw foods Yoghurt Cup cakes Tea, coffee, milk	Cream of tomato soup Cold submarine Raw foods Assorted puddings Cookies Tea, coffee, milk	Cream of asparagus soup Salad and cold meat Bread and butter Assorted "Granola Bars" Tea, coffee, milk
<b>Snack</b>	Beverages, cookies, fruit		
<b>Dinner</b>	Minestrone soup Hamburger steak (patties) Mashed potatoes Green beans Fresh or canned fruit, cookies Tea, coffee, milk	Rice soup Chicken or ham Potatoes Green peas Cup cakes Tea, coffee, milk	Vegetable soup or juice Green salad Macaroni or lasagna Fresh or canned fruit Cookies Tea, coffee, milk

*Note: These menus could be prepared on site, or ordered.*

We wish to thank the Department of Nutrition, Faculty of Medicine, University of Montréal, Quebec, for permission to reprint these menus.

# Menus for Emergency Workers

	1st Day	2nd Day	3rd Day
<b>Breakfast</b>			
	Citrus juice or 1 fresh fruit Muffins, bread or rusks Peanut butter or butter Hot chocolate or tea, coffee, milk	Citrus juice or 1 fresh fruit Hot cereals Hot chocolate or tea, coffee, milk	Citrus juice or 1 fresh fruit Muffins, bread or rusks Cheese or butter Hot chocolate or tea, coffee milk
<b>Snack</b>	Beverages, cookies, fruit		
<b>Lunch</b>	Cream of mushroom soup or juice Assorted sandwiches Raw foods Yoghurt Cup cakes Tea, coffee, milk	Cream of tomato soup Cold submarine Raw foods Assorted puddings Cookies Tea, coffee, milk	Cream of asparagus soup Salad and cold meat Bread and Butter Assorted “Granola Bars” Tea, coffee, milk
<b>Snack</b>	Beverages, cookies, fruit		
<b>Dinner</b>	Minestrone soup Hamburger steak (patties) Mashed potatoes Green beans Fresh or canned fruit, cookies Tea, coffee, milk	Rice soup Chicken or ham Potatoes Green peas Cup cakes Tea, coffee, milk	Vegetable soup or juice Green salad Macaroni or lasagna Fresh or canned fruit Cookies Tea, coffee, milk

**Note 1:** These menus could be prepared or ordered.

**Note 2:** In addition to the three meals, workers need to have between-meal snacks of:

- hot beverages or broths
- citrus fruit juice
- packets of nuts or dried fruits
- “Granola Bars” or a similar meal substitute

We wish to thank the Department of Nutrition, Faculty of Medicine, University of Montréal, Quebec, for permission to reprint these menus.

# Mobile Feeding Unit

## Centre for Emergency Preparedness and Response, Public Health Agency of Canada

### Weights and Dimensions

Box Number	Metric	Imperial	Metric	Imperial
#1	38.18 kg	84 lbs.	0.14716 m <sup>3</sup>	5.2 ft <sup>3</sup>
#2	28.18 kg	62 lbs.	0.12735 m <sup>3</sup>	4.5 ft <sup>3</sup>
#3	33.18 kg	73 lbs.	0.14999 m <sup>3</sup>	5.3 ft <sup>3</sup>
#4	30.90 kg	68 lbs.	0.14999 m <sup>3</sup>	5.3 ft <sup>3</sup>
#5	30.90 kg	68 lbs.	0.17546 m <sup>3</sup>	6.2 ft <sup>3</sup>
#6	27.27 kg	60 lbs.	0.17546 m <sup>3</sup>	6.2 ft <sup>3</sup>
#7	29.54 kg	65 lbs.	0.17546 m <sup>3</sup>	6.2 ft <sup>3</sup>
#8	27.27 kg	60 lbs.	0.17546 m <sup>3</sup>	6.2 ft <sup>3</sup>
#9*	90 kg	198 lbs.	0.39626 m <sup>3</sup>	14 ft <sup>3</sup>
#10	20.45 kg	45 lbs.	0.01415 m <sup>3</sup>	5.0 ft <sup>3</sup>
#11	20.45 kg	45 lbs.	0.01415 m <sup>3</sup>	5.0 ft <sup>3</sup>
#12	20.45 kg	45 lbs.	0.01415 m <sup>3</sup>	5.0 ft <sup>3</sup>
#13	4.09 kg	9 lbs.	0.02264 m <sup>3</sup>	0.8 ft <sup>3</sup>
Tables (2) large*	64.54 kg	142 lbs.	0.32828 m <sup>3</sup>	11.6 ft <sup>3</sup>
Tables (4) small*	78.18 kg	172 lbs.	0.43016 m <sup>3</sup>	15.2 ft <sup>3</sup>

Total weight of the complete mobile feeding unit: 467 or 480 kg – 1029 or 1059 pounds.

\* For box No. 9 and tables, adhere to safety rules on lifting precautions.

# Mobile Feeding Unit Content

	Quantity		Quantity
<b>Box No. 1</b>			
Arrows, directional (red)	6	Knife, paring	4
Axe, fireman	1	Ladle, with hook (6 oz.)	1
Bags, garbage (26" X 36")	10	Ladle, with hook (8 oz.)	2
Broom, push	1	Measure, metal (1 qt.)	1
Box, metal (for matches)	1 box	Opener, can (hand type)	4
Extinguisher, fire ( <i>with cartridge</i> )	1	Opener, can (punch type)	2
Extinguisher, fire ( <i>cartridge</i> )	1	Paper, wax, rolls of 100 ft.	2 rolls
Extinguisher, fire ( <i>powder - 8 lb.</i> )	1	Pitcher, aluminium (2 qt.)	3
Funnel, plastic (for fire extinguisher)	1	Scraper, pot (rubber)	1
Gloves, asbestos (gauntlet)	6 pairs	Sharpener, knife	1
Gloves, work (leather)	2 pairs	Spatula, spreading	4
Hacksaw (frame only)	1	Spoon, basting (long handle)	2
Hacksaw (blades)	10	Spoon, measuring	1 set
Hammer, claw	1	Spoon, mixing (stainless steel)	3
Kit, first aid	1	Tongs	2
Matches, wooden	1 box		
Paddle, wooden (36")	1	<b>Box No. 3</b>	
Repellant, insect (e.g. "OFF")	1	Plates, paper	700
Rope, sash (200-Foot coil)	1	Pot, cooking (for Soyer Cooker)	1
Saw, swede (frame and blade)	1	Pot, cooking for Soyer Cooker, lid for	1
Screwdriver	1		
Shovel, round blade (D handle)	1	<b>Box No. 4</b>	
Wrench, pipe (14")	1	Plate, paper	700
		Pot, cooking (for Soyer Cooker)	1
		Pot, cooking for Soyer Cooker, lid for	1
<b>Box No. 2</b>			
Bowl, mixing (16 qt.)	4	<b>Box No. 5</b>	
Brush, vegetable	4	Basin, hand (aluminium)	1
Chopper, food, #10	1	Can, garbage (with lid)	1
Cup, measuring	1	Cloth, dish ("J" cloth)	1 box
Dipper	1	Cup, drinking (paper)	850
Fork, cook (long handle)	1	Detergent ( <i>Cheer</i> )	1 box
Fork, table	2	Pail, galvanized	4
Knife, bread	2	Pan, dust	1
Knife, butcher	2	Sticks, stirring (box of 1000) wooden	1 box
Knife, cook (french type)	1	Towel, paper	2 rolls

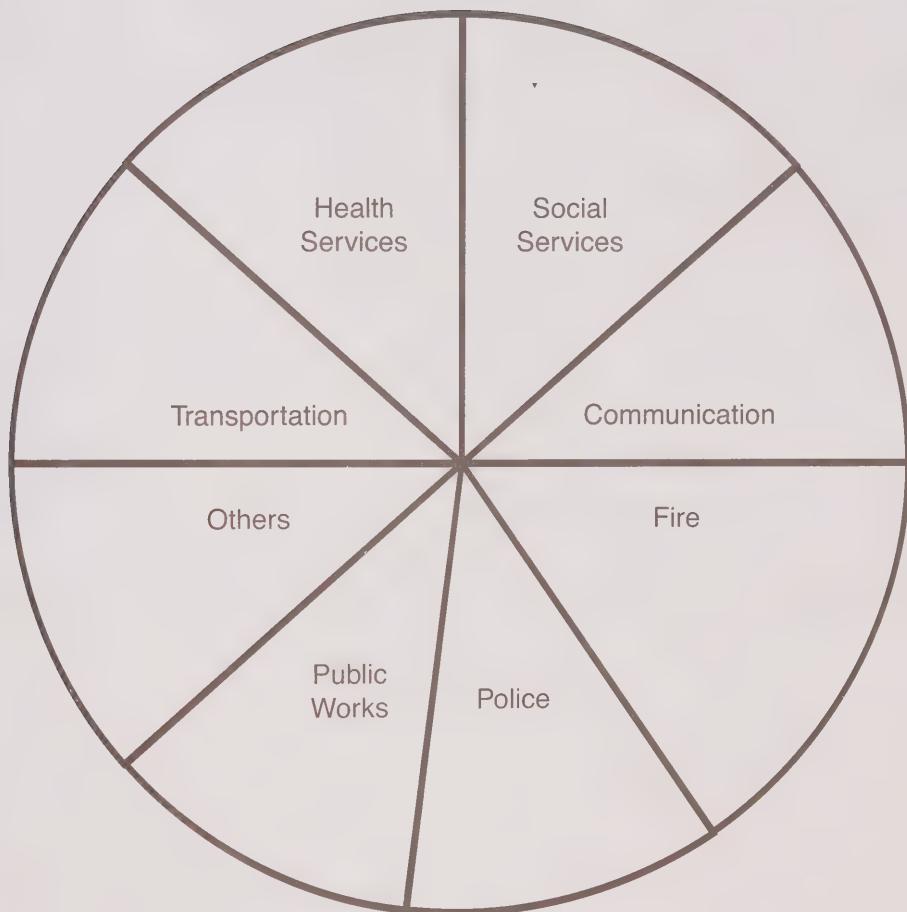
## Mobile Feeding Unit Content (*cont'd*)

	Quantity		Quantity
<b>Box No. 6</b>		<b>Box No. 10</b>	
Can, garbage (with lid)	1	Can, water (plastic)	2
Cup, drinking (paper)	1250	Spoons, soup (plastic)	1670
<b>Box No. 7</b>		<b>Box No. 11</b>	
Can, garbage (with lid)	1	Can, water (plastic)	2
Cup, drinking (paper)	850	Spoons, soup (plastic)	1670
Disinfecting compound (Halazone - 100 tablets/vial)	5 vials	<b>Box No. 12</b>	
Plates, paper	300	Can, water (plastic)	2
<b>Box No. 8</b>		Spoons, soup (plastic)	1670
Brush, pot	1	<b>Box No. 13</b>	
Brush, scrub	1	Can, gas (2 or 5 gallon capacity) with pouring spout	1
Can, garbage (with lid)	1	<b>Tables</b>	
Cleaner, pot (abrasive metal sponge)	3	Tables, folding (30" X 54") small	4
Cup, drinking (paper)	650	Tables, folding (30" X 72") large	2
Lid, small (plastic-2 7/8") to cover scouring powder	1		
Pail, galvanized	2		
Pan, dish (aluminium)	3		
Powder, scouring ( <i>Ajax</i> )	1		
Soap, hand (hard)	2		
<b>Box No. 9</b>			
Can opener (heavy-duty)	1		
Funnel, metal (for filling lantern)	1		
Globe for Coleman Lantern (no. 635)	1		
Lantern, Coleman (naphtha gas operated)	1		
Lantern, Coleman mantle for:	2		
Lid, for pot (Soyer Cooker)	1		
Plate, paper	300		
Pot, cooking, with hooks (for Soyer Cooker)	1		
Stove, complete, Soyer Cooker type	1		

# Community Emergency Plan

Public Health  
Casualty Care

Lodging  
Clothing  
Food Service  
Personal Services  
Registration & Inquiry



# Liquid Diet\*

Food Groups	Foods Allowed	Foods to Avoid
EVERYTHING NOT ON PERMITTED LIST		
Soup	Strained and defatted bouillon (jelled or hot)	Cream, etc.
Desserts	Plain fruit jelly	Custard, ice cream etc.
Sweeteners and confections	White sugar, honey, plain candies, popsicles	
Beverages	Strained fruit juices, tea, coffee, infusions cereal-based beverages, soft drinks, fruit- flavoured beverages, bottled water	Milk etc.
Miscellaneous	Salt, flavourings, fibre-free* and lactose-free* nutritive formulas, e.g., Enrich, Ensure, Ensure Plus, Isocal, Magnacal Osmolite HN, Portagen.	

\* Items containing lactose or fibre may be used according to diet and individual tolerance.

We wish to thank the Corporation professionnelle des diététistes du Québec (CPDQ) for permission to reprint this table, adapted from the *Manuel de nutrition clinique*, 1987.

# Soft Diet

Food Groups	Foods Allowed	Foods to Avoid
Soups	Bouillons, consommés Strained creams	EVERYTHING NOT ON PERMITTED LIST
Meat	Very liquid meat purées incorporated into soups	
Eggs	Pasteurized eggs in egg-based dairy drinks, egg substitutes	
Dairy Products	Milk, dairy drinks, cream, yoghurts, miscellaneous ice creams (without fruit or almonds) instant breakfasts	
Cereals	Cream of wheat, corn semolina, strained oatmeal	
Vegetables	Very liquid vegetable purées incorporated into soups, tomato juice	
Fruits	Very liquid fruit purées, fruit juices	
Desserts	Miscellaneous desserts made <i>without</i> almonds, fruit or coconut fruit jellies, dessert creams, blanc-mange, flan, plain ice cream, sherbet	
Sugar and confections	White sugar, brown sugar, honey, syrup, molasses, hard candies, slush, popsicles	
Fats	Butter, margarine, oil	
Beverages	Tea, coffee, decaffeinated coffee, cereal-based beverages, soft drinks, fruit- flavoured beverages, bottled water	
Miscellaneous	Salt, corn starch, flavourings, cocoa powder, chocolate powder, barm, cream substitutes. Commercial nutritive formulas (fibre/lactose free or otherwise)*, e.g., Enrich, Ensure, Ensure Plus, Isocal, Magnacal, Osmolite HN, Portagen.	

\* Items containing lactose or fibre may be used as indicated by diet and individual tolerance.

We wish to thank the Corporation professionnelle des diététistes du Québec (CPDC) for permission to reprint this table, adapted from the *Manuel de nutrition clinique*, 1987.

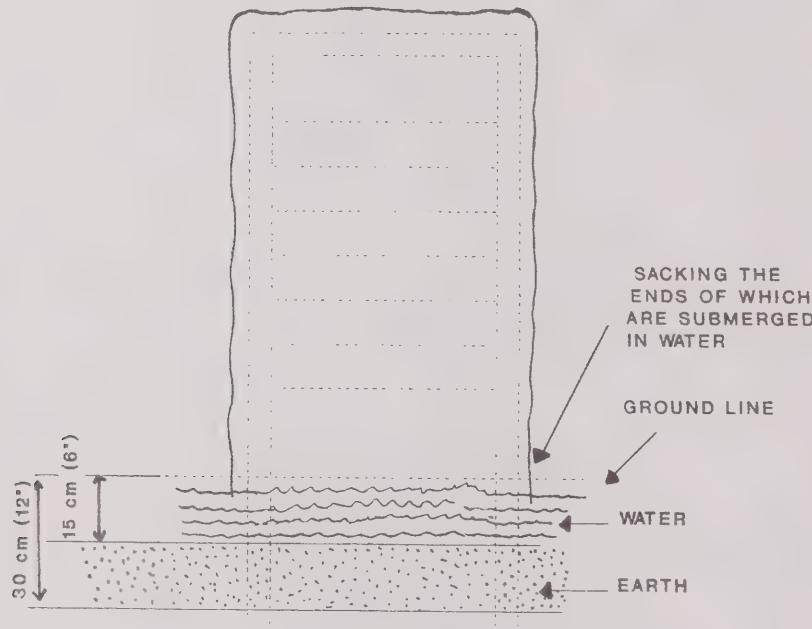
# Improvised Refrigeration

Improvised refrigeration facilities are, at best, poor substitutes for mechanical refrigeration, but under some emergency circumstances they may be necessary. Two possibilities are illustrated below.

## 1. Improvised Refrigeration Above Ground

### Construction

Construct the box so legs are 30 cm (12 inches) below the bottom shelf. The cooler is placed in a hole (30 cm [12 inches] deep) which is filled with water. Dampen the sacking; water in the hole keeps sacking moist and air moving through the damp sacking cools the interior.



### Materials

- wooden box or four uprights with shelves
- mosquito-proof netting
- burlap or cheesecloth, for covering

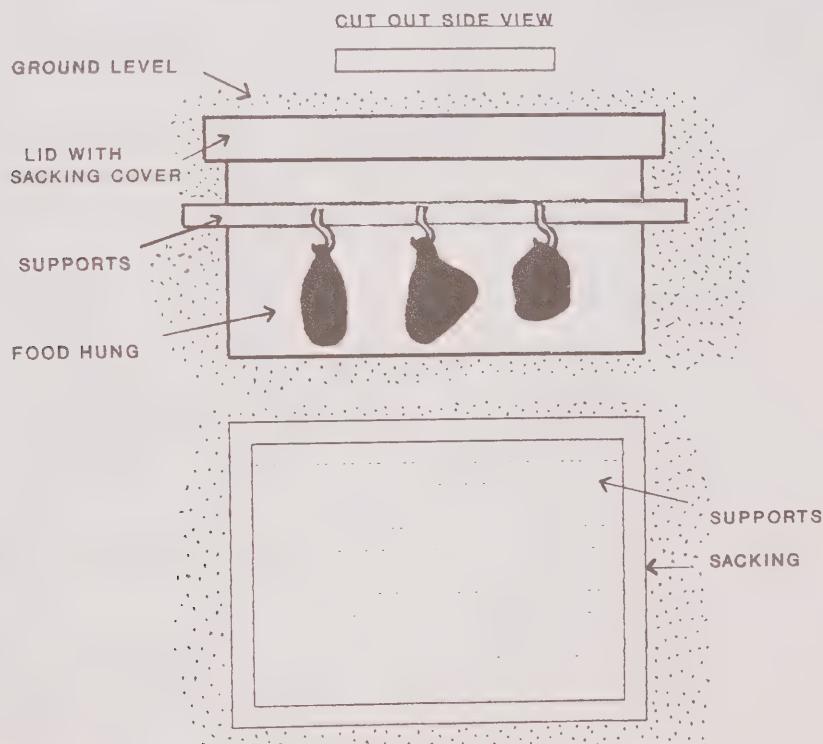
## Other methods

- dig a shallow trench around the cooler. Fill the trench with water and hang sacking over the trench;
- suspend a water can with nozzle above the cooler so water can drip on the sacking;
- gather the material at the top of the box, place the gathered end in a pan of water, and hold the material in place with a stone or other weight. The rest of the material should be draped around the box, leaving a small opening.

Requirements dictate size. An average cooler could be 1.5 m (5 ft.) or 1.8 m (6 ft.) high and 1.2 m (4 ft.) wide and 1.0 m (3 ft.) deep.

The cooler may be suspended to protect contents from animals.

## 2. Improvised Underground Refrigeration



## Construction

The ground hole should be in a shady spot, if possible, and should be at least  $0.3716 \text{ m}^2$  (4 sq. ft.) in width by 1.5 m (5 ft.) deep.

The cover should fit tightly.

The sides of the pit may be lined with boards, tin, clean sacking, or branches.

Soak the sacking on the lid at intervals.

## Other Cooling Methods

- Place watertight containers in running streams.
- Surround containers with water-soaked newspaper.

# Alternative Solutions

## Formula Composition

(For one infant per day)

### Under 6 months

1 can (15 fluid ounces) Evaporated milk  
1 ounce sugar (2 tablespoons)  
25 ounces water

or

5 ounces skim milk powder  
(approximately 1 3/4 cups)  
1 ounce sugar (2 tablespoons)  
40 ounces water

or

30 ounces safe fluid milk  
10 ounces water  
1 ounce sugar (2 tablespoons)

### Over 6 months

1 can (15 fluid ounces) Evaporated milk  
1 can water

or

5 ounces skim milk powder  
(approximately 1 3/4 cups)  
30 ounces water

or

30 ounces safe fluid milk

**Note :** The amounts of mixture required per baby will vary with age. The total amount should be dispensed in eight ounce quantities. This is based on the assumption that infants under six months would need at least five feedings per day, while those over six months may get along on four feedings per day. This will vary with the availability of other foods. If no solids such as cereal were available, more milk feedings would be necessary.

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